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*Illustrated.

The withdrawal of the nomination of Mr. Jones for the Federal Reserve Board after the failure of his confirmation by the Senate became certain, has profound significance, not merely for those interested in banking and currency, but for all who are interested in the relations between government and business. The government has been within late years rapidly extending its regulating authority over various classes of business concerns. It is essential, if regulation is to be fair, intelligent and beneficial, that the regulatory laws shall be administered by men having expert fitness for their duties. Numerous proposals are being made for government ownership of various facilities, such as the telephone, the telegraph, railways, coal mines, and so on. The need for

Barring Ability from Public Service

expert administrators would be still greater under government ownership than under government regulation. Large enterprises cannot be managed by any other kind of men. The advocates of public regulation and public ownership say that the government could and would secure such men. Yet every time that Congress has a chance to, it furnishes evidence tending to refute this contention. The test of business ability is achievement in the field of business, and men who achieve in that field necessarily become identified with large concerns; but almost every time a man who has been identified with a large concern is suggested for a public office requiring business ability, the leather-lunged and wooden-headed demagogues begin to split the ears of the groundlings with their bellowings against him. Neither government regulation nor government management can ever be a success in this country so long as it is as easy as it is now for yelping demagogues to get into Congress, and as hard as it is now for men of ability and experience to get into any branch of the public service.

The Interstate Commerce Commission has apparently definitely decided to require a form of accounts which will show freight and passenger expenses separately. It is now at work with a committee of the Association of Railway Accounting Officers looking to the formulation of a set of rules for dividing expenses that are not directly assignable between these two classes of service. The commission announces that if sufficient progress can be made, carriers will be asked to file a special report for the year ending June 30, 1915, in which no operating expenses are to be left unapportioned. With the question of whether or not such a separation is wise and feasible decided probably beyond appeal by the commission, it is of the utmost importance that the very best system for making an arbitrary division of expenses should be adopted. Such a system ought to combine two seemingly irreconcilable characteristics. It ought to be flexible enough to be adaptable to widely different conditions, and it ought to be strictly enough defined so as to provide uniformity. Since it is to be an important step in the development of cost accounting for railroads, it should be based on a careful, painstaking analysis of the facts and not on a theoretical or arbitrary basis of reasoning.

The attempt to make a comprehensive formula for the apportionment of expenses between freight and passenger service, a description of which was published in our last issue, is, so far as we know, the most comprehensive and scientific attempt that has ever been made to lay down the principles of cost accounting for railroads. This scheme was worked out by a committee of which James Peabody, statistician of the Atchison, Topeka & Santa Fe, was chairman. Most fair-minded, unprejudiced railroad officers will probably acknowledge that if this scheme could be applied to the operations of a railroad by a corps of unusually intelligent accountants it would show with at least a working degree of accuracy a division of expenses as between freight and passenger service. The difficulty lies in the fact that in practice if such a scheme as this were to be prescribed by the Interstate Commerce Commission it would not be and could not be applied by an unusually intelligent and competent corps of accountants to the operations of every railroad company in the country. The scheme depends for the accuracy of its results both on a keen analysis of conditions and on a sympathetic and painstaking application. Its application to different railroads would undoubtedly be most uneven. No one who has had anything to do with the returns which are now made to the Interstate Commerce Commission can doubt that on some roads the commission's instructions would be most unsatisfactorily carried out. There are infinite oppor-

Division of Freight and Passenger Accounts

A Formula Now Being Tested

tunities for bias or bad judgment to warp the results that would be obtained by the application of such a scheme as this by the Interstate Commerce Commission. This is not, however, saying that it would be without value to the roads themselves, or would not in time be found to yield information of real importance and usefulness.

The total length of railroad in the United States on June 30, 1912, was 246,816 miles, or 2,837 miles more than the total one

**Government
Statistical Report
[for 1912]**

year prior to that date. Railroads in Hawaii and Alaska (655 miles) are not included. This total appears in the final statistical report of the Interstate Commerce Commission for 1912, the first 65 pages of which were issued this month and were noticed in these columns two weeks ago, page 87. As was suggested in that notice the value of most of the two-years-old facts here given out by the commission is impaired by the great delay, and by readers' confusion due to preliminary partial publications; but this item of total mileage, which will be wanted in all future comparisons, should be classed as real news. The figure for 1911, used in the statement of increase, is 200 miles less than that which was given in the commission's report for that year; and it appears that this discrepancy is the result, not of a single error in adding, but of corrections in a considerable number of items. The table now printed gives the total for each state, with the increase or decrease from the preceding year. Nine states show decreases. While this statement of mileage is the only one in the report which is of major importance and which has not been in part anticipated by earlier publications, there are many pages of matter which now appear for the first time and which are useful to the student and investigator—such as details of cars and engines and of data concerning employees and wages, capitalization, interest and dividends. Indeed, for the investigator who keeps his eye on the country as a whole this partial report for 1912 is almost as satisfactory as the full volume; and he gets it a good deal earlier. It contains a three-page analysis of railroad taxes by states, with the three classes of roads—big, medium and small—shown separately; and the full statement of roads in the hands of receivers; and these and all the other statistics are given separately for each of the three grand divisions into which the country is divided—eastern, southern and western.

THE OPERATION OF LARGE TERMINAL YARDS

TWO series of the papers received in the contest on "The Operation of Large Classification Yards" already have been published in these columns (July 3 and July 24), and the third and last will appear at an early date. The interest which this contest has excited has shown that railway men are fully awake to the importance of the problem of yard operation. An equally important problem is presented by the operation of large terminal yards where freight is received and delivered. To secure a full discussion of this subject we announce a contest on "The Operation of Terminal Yards," including the switching of cars to and from freight houses, team tracks, docks, industry tracks, etc., the delivery of cars to, and their receipt from connecting lines—in fact, all the problems presented to the terminal superintendent or yardmaster in the handling of freight cars between the classification yards and the various points of receipt or delivery.

The terminal superintendent, or yardmaster, is in direct contact with the shipper, and the problem of giving him satisfactory service, while at the same time operating the entire terminal economically and efficiently is a complicated one. There is a great chance for cars to be delayed or lost, while it is most difficult to exercise close supervision over a large number of switching crews widely scattered and frequently working for a large portion of the day on the track of other roads. These and

numerous other problems call for the exercise of a high degree of executive ability.

Every practical operating officer has considerable knowledge of this subject. But it can best be discussed in its many ramifications by those who are now, or who have been, in actual charge of this work; they are in the best position to offer valuable suggestions for improvements in this branch of the service. We especially desire to secure a thorough discussion of this subject, and will pay \$50 and \$35 for the two best papers received, and our space rates for all others accepted and published. The award will be based upon the practicability and value of the ideas presented, and on the completeness with which the subject is covered.

All contributions should be sent to the Editor of the *Railway Age Gazette*, 608 South Dearborn street, Chicago, and must be received not later than September 15 to be considered by the judges.

DANGER IN THE CAR SITUATION

THE statistics of the American Railway Association show that, in the aggregate, there is a large surplus of freight cars in the country. But the situation which already has developed at Galveston illustrates strikingly the danger of traffic congestion and car shortage with which the railways, the shippers and the consignees are confronted. As usual, the country elevators and farmers have been rushing the wheat crop to Galveston almost as fast as it has been threshed. The railways were at first able to move it as rapidly as it was offered to them. But there have not been enough boats at Galveston to take away the grain delivered there. The facilities of the consignees for unloading the cars, and the storage capacity of their elevators, mills and warehouses, have proved inadequate. Consequently, after getting their terminals crowded with cars, the principal carriers to Galveston, have had to put an embargo on the movement of grain to that port. The Santa Fe alone, at latest reports, had 1,800 cars on the island, and 1,900 waiting outside that could not be moved to it.

There is danger that a like situation will develop at other large grain markets, unless the railways, the shippers and the consignees heartily co-operate to prevent it. There will be a great effort on the part of the farmers and country elevators generally to ship the grain as fast as cars can be obtained. Statistics of car supply published from time to time by the American Railway Association show that the number of cars owned by the railways operating in the territory west of Lake Michigan and the Mississippi river was 658,151 on January 1, 1910, and 766,275 on January 1, 1914, an increase in four years of 108,124, or 16.4 per cent. Owing to the large capacity of the cars constructed during this period, the actual increase in the aggregate car capacity has been not less than 20 per cent. Besides there has been recently a substantial increase in the number of surplus box cars available in this territory, they having been moved there to be ready for handling the crop. There has been a corresponding increase in the number and power of locomotives; and additional track, signals and yard facilities have been provided. As a result, the numerous lines leading from the grain fields to the great markets, which are largely double track, can move grain in practically unlimited quantities. But can it be promptly handled at the elevators, mills and warehouses, to which it is ordered on arrival?

The increase in the capacity of these facilities of the consignees has not, it is feared, kept pace, except in rare cases, with railroad development. In few cases have the increases in the capacity for the storage of grain been accompanied by increases in facilities for unloading it. This is believed to be the condition at Chicago, Milwaukee, Minneapolis, Duluth and the Atlantic and gulf ports. The most serious troubles in transportation arise from difficulties encountered in disposing of the loads. So long as the facilities of the consignees permit cars to be unloaded promptly and started back to the grain-producing districts for

more loads, it is probable there will be no serious congestion at the terminals and no car shortages in the grain-producing districts. But when the consignees begin to fail to unload promptly, cars will begin to accumulate at other terminals as they have at Galveston. The terminals will become congested, as at Galveston, hindering prompt movement and causing shortages of equipment in the grain-producing districts. The only recourse of the carriers must then be to decline to furnish cars for loading to markets where they cannot be promptly unloaded.

Needless to say, it is to the interest of all concerned that this situation shall be avoided, and that the grain shall be moved with the greatest possible facility and the least possible friction.

REGULATION OF RAILROAD SECURITIES

THE *Railway Age Gazette* long has advocated some form of federal regulation of the issuance of railway securities. It has regarded some such regulation as inevitable, and has felt that if it were reasonable, and recognized business conditions and sound economic principles, it would do good. The bill pending in the Senate ignores business conditions and is not based on sound economic principles.

Doubtless legislation should specify, as the bill in the Senate does, the purposes for which securities may be issued. It should contain provisions, as this bill does, which would give publicity to the purposes for which securities are to be issued, the amounts received for them, how they are marketed, the disposition made of the funds raised, and so on. Ample authority should be vested in the Interstate Commerce Commission or some other agency for ascertaining whether the reports made by railway directors and officers concerning these matters are correct, and for securing swift and exemplary punishment of those guilty of wrongdoing either in connection with the issuance of securities or with the disposition of the receipts.

The bill before the Senate goes much farther than this. It prohibits the issuance of any securities without the approval of the Interstate Commerce Commission, and authorizes the commission "to fix a minimum price below which said securities shall not be sold or disposed of or said obligations entered into and to make such other rules and regulations relating to the sale or distribution of said securities" as in its judgment may be for the best interest of the carrier and the public.

The objections to such legislation were clearly and conclusively stated in the report of the United States Railroad Securities Commission three years ago. One of the present members of the Interstate Commerce Commission, B. H. Meyer, was a member of the Railroad Securities Commission. If Congress will not heed spokesmen for the railroads, will it not give ear to a public official so well fitted to advise it as is Mr. Meyer?

Among the principal objections to the proposed legislation are the following:

First, there are numerous railway companies, and it is essential to the proper management of their business that, in the aggregate, they make many issues of securities each year. In order that they may place their stocks and bonds to the best advantage it is often necessary for their directors to decide and act quickly. The Interstate Commerce Commission is very busy, and, because of the increased duties Congress constantly is giving it, will grow busier. It would be impossible for a single body of men, even though it had no other duties to perform, to pass on all the securities issued by all the railways with anything like the facility that commercial conditions demand. As the Railroad Securities Commission said, "A growing railroad has constant need of money, and its officers and directors are the best judges of the amount of its annual requirements. It is manifestly to the interest of the company and of the public that a road should get its money as cheaply as it can. The policy of allowing a floating debt to accumulate with a view to its extinction by the sale of permanent securities

upon the completion of its improvements is not a good one and should be avoided wherever possible. An administrative body, whose approval was required in advance for the sale of securities, would have great difficulty in always acting promptly enough to enable the roads to avail themselves of favorable money markets and avoid the creation of floating debts."

Second, for the commission to attempt to fix the minimum price at which securities should be sold would result disastrously directly to the railways, and indirectly to the public. No board of directors can foresee with an approach to certainty at what price an issue of securities will sell. Banking houses which make a business of underwriting securities often err, and in consequence have to pocket losses. If directors and bankers with a good working knowledge of individual properties, and familiar with the attitude of investors toward them, often cannot estimate accurately what their securities can be placed for, how can it be thought that the Interstate Commerce Commission would be able to determine what prices the securities of all of the railways of the country would bring? In many cases the commission would fix minimum prices that were too high, thereby disabling the roads from selling them and rendering impossible the making of contemplated improvements.

The experiment of having regulating bodies fix the prices at which railway securities shall be sold has been tried and has failed. As the Railroad Securities Commission said in its report, "The experience of Massachusetts has shown that the attempt to prohibit the issue of stock below its market value has hampered the investment of capital and has distinctly interfered with the development of facilities. If this has been the experience of Massachusetts, where capital was abundant, we can hardly expect better results in states where capital is more scarce." That the attempts of the Massachusetts Railroad Commission to regulate the prices at which securities should be sold were failures was confessed in 1908 in the most conclusive manner—namely, by the repeal of the law under which the commission had acted for 15 years.

Third, such legislation as is proposed is objectionable because it would tend to deceive investors, and thereby to injure instead of benefit them. If the Interstate Commerce Commission should fix a minimum price for an issue of stocks or bonds it would thereby say that it believed that the stocks or bonds were worth that much. No doubt, at first, many investors would buy securities because of faith in the commission's judgment. But it would soon develop that the commission made mistakes. There would be many cases where securities would not yield the returns the commission expected or long command the price in the market that it had caused to be paid for them. In numerous cases investors in the securities of Massachusetts railways paid for them prices fixed by the Massachusetts commission, only to suffer losses because of subsequent heavy declines in their values. If the government through the Interstate Commerce Commission is going to say to innocent investors that a railway share or bond is worth a given amount, and encourage them to buy it at that price, than it ought to be prepared to make its guarantee good by a suitable system of taxation or of rate regulation. Either of these alternatives is objectionable. Louis D. Brandeis is a Massachusetts man who knows how the law in that state worked, as well as a public-spirited citizen, and, therefore, his drastic criticisms of the proposed federal legislation should carry great weight.

Legislation for the regulation of the issuance of railway securities should, first, prescribe the purposes for which securities may be issued; second, cause such publicity to be given to the facts regarding the business of the railway issuing them that the investor will be able to determine for himself what they are worth, and third, prevent the money derived from securities from being recklessly or dishonestly misapplied. Any legislation which tries to do more than this will cause more harm than good.

Letters to the Editor

PLACING HUMP RIDERS ON A PIECE WORK BASIS

CHICAGO, Ill., July 7, 1914.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

Noting the discussions regarding the operation of large classification yards in your issue of July 3, I offer a suggestion that where the volume of business will warrant, the car riders in gravity yards be placed on a piece work basis, paying these men for the number of cuts they ride, instead of by the day or hour. It is an established fact that we are not securing over 75 per cent. efficiency with our present system of riding these cuts. The only objection to this would seem to be that the men will take chances, and thereby create additional damage. I feel, however, that this can be readily overcome by proper supervision.

E. W. BROWN,

Assistant Superintendent, Lake Shore & Michigan Southern.

A RETRENCHMENT THAT MIGHT STRIKE NEAR HOME

NEW YORK, June 1, 1914.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

I have been for many years a reader of your paper and have read discussions of many items of expenses connected with the operation of railways, some of them forming but a fraction of 1 per cent. of the gross earnings. There is one item, however, which amounts to a great deal more in many cases, to which I have seen no reference. I refer to legal expenses. Some of the large roads may be able to carry this burden with ease, but to some of the smaller ones it seems almost crushing.

I have a case in mind of a small railroad which has been earning about \$100,000 a year gross, which has been paying to its very efficient and active counsel \$900 a year. The company has recently extended its line and its gross earnings are now about double, but the company has had the misfortune to lose the services of the above mentioned general counsel by death and no other law firm of standing in the particular town adjacent to the road seems to be willing to accept its business for less than \$2,400 a year, and this does not cover all the legal expenses by any means. I have talked with the officers of other lines who all join in complaining about the exorbitant demand made for legal services.

There is another subject bearing on this point. The item of expenditures on part of the railroads is supervised by the Interstate Commerce Commission, but when the company gets into trouble there are lawyers for the receivers, lawyers for the company, lawyers for the bondholders and lawyers for the stockholders, as well as for secured creditors and unsecured creditors, and they all expect to be, and generally are paid out of the corpus of the property. Frequently the legal expenses run up to large figures and the result obtained for this large sum is generally quite disproportionate.

Possibly legislative bodies being largely composed of lawyers do not care to legislate against these exorbitant legal charges, but with hard times pressing the railroads, this matter should certainly be fully discussed.

KICKER.

EARLY RAILROAD BUILDING

ALBANY, N. Y., June 10, 1914.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

Among the many broad generalizations made by Professor Ripley in his instructive articles on "Railroad Construction Finance," there is the statement:

The first railroads laid down in America were built as in England, to last forever. On the Boston & Lowell and Baltimore & Ohio, iron rails were laid upon granite cross ties in order to give permanence.

Although we can have no definite proof as to what was in the minds of the early railroad builders, there is, however, con-

siderable doubt whether the Baltimore & Ohio was originally laid upon granite "cross ties" so as to be built to last forever. In a report signed by three eminent engineers, dated March 14, 1835, to the Canal Commissioners of the State of New York,* it is stated regarding the Baltimore & Ohio (then 67½ miles):

Over ¾ of the superstructure is timber sills and rails capped with an iron plate; ¼ or (26/100) is stone rails capped with iron plates; and 1/17 is timber rails on light stone blocks.

Thus, nothing is said regarding granite cross ties. If they existed, they were laid at the ends of stringers for the purpose of preventing tracks from spreading, and not for durability.

Professor Ripley also gives as evidence of the "permanent character" of the early construction of American railroads the fact that the original New York & Erie elevated 200 miles of track on piles for the purpose of eliminating grades. It seems, however, that building on piles in the early days was less expensive than excavations and embankments. Thus the South Carolina Railroad is described in the report of the New York Canal Commissioners as "having been placed on piles, excavation having been avoided as much as possible, and embankments omitted altogether, by which the expense of grading has been very little."

A. M. SAKOLSKI,

Lecturer on Railroad Economics, New York University.

NEW BOOKS

Foundations of Bridges and Buildings. By Henry S. Jacoby, professor of bridge engineering, Cornell University, and Roland T. Davis, professor of structural and hydraulic engineering, West Virginia University. Size 6 in. by 9 in., 603 pages, illustrated, cloth binding. Published by McGraw-Hill Book Company, New York. Price \$5.

This book can readily be divided into four parts, the first consisting of five chapters with a total of 197 pages devoted to timber, concrete and sheet piles; second, seven chapters with a total of 210 pages covering cofferdams and caissons; third, three chapters with 76 pages, devoted to piers and abutments, and fourth, four chapters treating of spread foundations, underpinning buildings, explorations and unit loads, and a chapter giving very complete references to engineering literature, classified as to the subjects treated in the previous chapters.

The large amount of space devoted to piles is justified by the authors on the ground that the primary field for the book is for class room instruction and young engineers are more likely to come in contact with pile foundation work than any other class of foundation construction early in their experience. It is also felt that the recent introduction of concrete piles will do much to keep that type of construction in the lead of other classes of foundations. The treatment covers equipment, methods of driving, bearing power, the various types of concrete piles and metal and sheet piles. The discussion of cofferdams and caissons includes one chapter on cofferdams, one on box and open caissons, two on pneumatic caissons for bridges, one on pneumatic caissons for buildings, one on pier foundations in open wells, and one on pneumatic caisson practice, which was written by T. Kennard Thomson, a consulting engineer who has specialized in foundation construction. The three chapters on piers and abutments are included to meet the demand for a concise treatment of this subject in engineering schools which combine the study of masonry construction with that of foundations.

The authors have recognized the impossibility of covering so large and varied a subject exhaustively within the limits of such a book, and have met this difficulty by the very liberal use of references to engineering literature, both in the bibliography in the last chapter and in notes scattered through the discussion.

TELEGRAPHIC COMMUNICATION IN NIGERIA.—In 1911 Nigeria owned and operated 1,704 miles of telegraph line and 3,286 miles of wire. There have been several important extensions since that time, so that now the lines connect all of the principal office headquarters and trade centers.

*This is reprinted in the "Annual Report of the State Engineer on the Canals of New York," 1862, pp. 145-178.

The Federal Valuation of the S. P., L. A. & S. L.

A Description of the Organization Employed and the Methods Followed in Collecting the Required Data

By E. G. TILTON

Formerly, Chief Engineer, San Pedro, Los Angeles & Salt Lake.

As its name indicates, the San Pedro, Los Angeles & Salt Lake extends from San Pedro, on the southern coast of California, to Salt Lake City, a distance of 810.7 miles, passing through Los Angeles 27 miles inland from San Pedro. This line is known locally as the Salt Lake route and the owning company is referred to as the Salt Lake Company.

Of the 1,129.24 miles composing Salt Lake system, of which 783.58 miles are main line and 345.66 miles are branch lines and industrial spurs, the Salt Lake Company owns 681.14 miles of main line and 329.13 miles of branches and spurs. Only that portion of the road between Los Angeles and Salt Lake is designated as main line; the portion from Los Angeles to San Pedro being included with the branches. The main line is not owned continuously by the Salt Lake Company. Between Riverside, Cal.,

been rebuilt to the adopted standards and the branches have been very much improved.

Some of the purchased lines had passed through several ownerships with the result that many of the original records of construction were mislaid, lost or destroyed. For this reason it will be impractical in all cases for the federal valuation engineers to determine the first cost of component parts of this system. Quite complete data covering the construction of the line from Lynndyl via Tintic and Garfield to Salt Lake City is in existence as this section had just been completed when it was taken over by the present company and its construction records are well preserved. Complete data are likewise available covering that portion of the lines west of Caliente, and but little difficulty will arise in determining the original cost of those lines. An exhaustive valuation of the company's lines in California has recently been compiled by the engineers on the road for the California State Railroad Commission. Therefore, it may be stated that the engineering and accounting records of about 40 per cent. of the mileage of the system are very complete, while they are only partially so for the remainder.

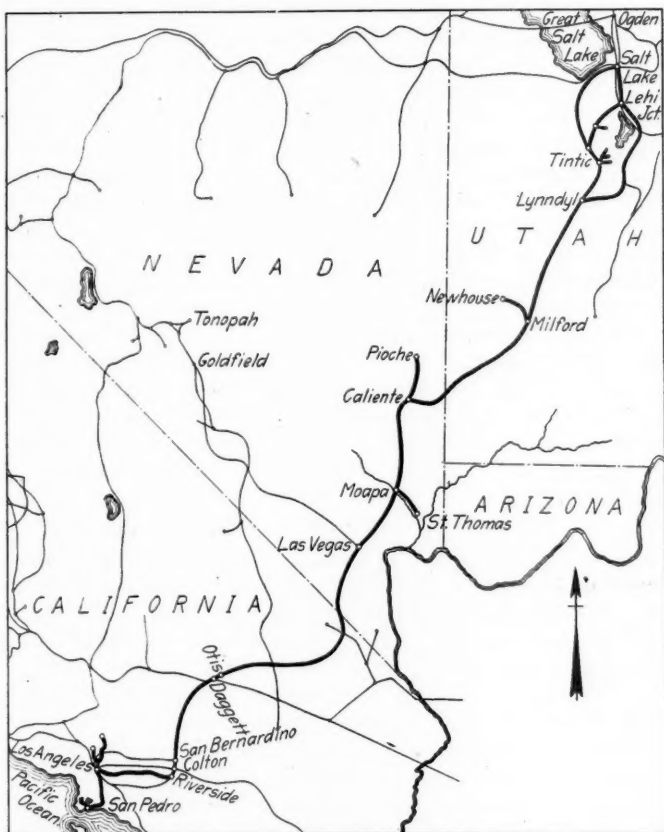
CHARACTERISTICS OF THE ROAD

West of Riverside the lines of this system traverse thickly populated valleys, while of the 300 miles of practically unsettled desert country between Daggett and Caliente about two-thirds are sandy plains and the remainder mountainous. In this last section the atmosphere is very dry and the summer temperature is high. For some 90 miles in this section the main line traverses a series of attenuated valleys, connected with each other by ravines and canyons, down which Meadow and Clover creeks, the main drainage streams, flow merging together at Caliente. These streams are usually dry or nearly so, but when in freshet from melting snows or heavy protracted rains they become violent torrents and run at high velocity down sandy beds having gradients averaging one per cent. Floods in these creeks so frequently and seriously damaged the road and interrupted its operation, that after the destruction of most of it in the winter of 1909-10, a new line was built in a safer location and of a more substantial design.* Between Caliente and Salt Lake City, with the exception of about 60 miles of mountainous and broken country, the main line traverses a high plateau which was once the bed of a prehistoric lake of which body of water the existing Great Salt Lake is but a shrunken remnant. Most of the mileage of branch lines in this division lies in the valleys.

The main freight and passenger terminal is located at Los Angeles, where an extensive yard and other facilities, including division shops for light repairs, are provided. Repair shops and freight yards are also located at four other terminals on the line. The main shops are at Las Vegas, Nev.

The material encountered when grading the valley and plateau sections of the road was principally earth with which loose rock and cement were occasionally combined. In a few instances rock and conglomerate were encountered. Classification of material on these portions of the line during construction was not difficult, and it is quite possible to determine it even now with a fair degree of accuracy by examination and measurement. In the mountainous sections, however, the formation included several kinds of rock, massive conglomerate, loose rock, cemented material and earth, the latter generally lying as an overburden

*In an address recently delivered, a prominent person stated that the line in this place had been twice rebuilt on new locations after being destroyed by flood. This is incorrect. After washouts, previous to the one referred to, the line was always restored on its original location.



Map of San Pedro, Los Angeles & Salt Lake Lines

and Daggett, 100 miles, and for the last two miles entering Salt Lake City, trains are operated over the lines of foreign companies under trackage agreements, while the terminals in Salt Lake City are also used under such an agreement. Also on the Provo sub-division, formerly the main line, trains operate from Sandy to Salt Lake City, 13 miles, over the rails of another company.

With the exception of the branch to Pioche, a ten-mile line change on the Provo sub-division and branch line extensions amounting to about ten miles more, all the lines of the Salt Lake system lying east of Caliente, Nev., and west of Los Angeles, were built by different companies during the 25 years preceding 1900 and were purchased by the Salt Lake Company in 1901. The line between Los Angeles and Caliente has been constructed since 1900, since which date all the main lines purchased have

upon the other materials. In many of the cuts these materials were so mixed that classification for the contractor's estimates was a perplexing task. To determine accurately the component classification and yardages of such cuts now, 10 or 12 years after they have been excavated, is quite impracticable. At best an engineer can only make an approximate estimate based chiefly upon his visual examination and his judgment derived from experience gained on work where analogous geological conditions prevailed, unless he uses the railroad company's records as a guide in his determination. It is also impracticable now to ascertain accurately by measurement the vast yardage of riprap protection which has been placed along the slopes of embankments exposed to the wash of streams.

THE VALUATION WORK

The work of making a valuation of the Salt Lake Company's property in accordance with the congressional enactment of March 1, 1913, is now being done. The Pacific valuation district embraces the states lying west of the Rocky mountains, and the Salt Lake line was the first on which work was undertaken in this district. The factors which contributed to the choice of this line were: That it contains a smaller mileage than any of the other large railroad systems; that a large proportion of its mileage has been built within the past decade and its records for that part are complete and in available form; that its property includes ocean as well as inland terminals; that the climatic conditions prevailing throughout the year over the entire line are such that work could be started at any time and carried on without interruption, and because on this road a long section of main line had been destroyed by floods and a new section had been built on another location in its stead, which factor brings up for decision by the commission the question of what proportion of the sums expended in the construction of the destroyed line can be included in the company's capital account and what proportion in its operating account. The ruling of the commission on this subject will be of much interest to other roads, especially in the west, where nearly all have been obliged to rebuild portions of their lines on new locations and on more stable ground.

To begin the work, two parties were placed in the field about February 1, which number has since been increased to five. Four parties are termed roadway and track parties and each consists of one instrument man, one recorder, one computer, four rodmen and tapemen, one laborer and one cook, all in charge of an assistant field engineer. The fifth party is a structural party composed of one assistant structural engineer in charge and three assistants. An assistant engineer employed by the railway company is also assigned to each of the five parties.

The roadway and track parties are housed in cars provided for this purpose. Two box cars fitted up by the company were assigned to each of the first two parties, one car being a combined kitchen and dining room and the other a combined office and dormitory. The three parties sent out later were each given an old Pullman tourist car containing all the provisions described above. Double deck metal cot beds were provided in the box cars, although the men will probably find it necessary for comfort at night to remove their beds to the ground outside when on the desert during the summer. The government pays for the rental of the cars, the hire of cooks and transportation and furnishes the cots and bedding. The men pay for the commissary and supplies, each being allowed one dollar a day subsistence money. The freight rate for commissary supplies has not yet been fixed. The men's laundry is carried to and from town by local passenger trains, which also receive and deliver mail for the camps. Ice is delivered by train and water is also likewise provided at dry sidings. Camp is shifted at intervals of about 15 miles by local freight trains.

The interval between the parties is not uniform, each being assigned sufficient territory to keep it employed for a considerable length of time. A hand car and a track velocipede are furnished by the railroad company to each camp for the use of the men going to and returning from work. While motor cars were considered for this purpose, it was decided to use hand

cars as safer and in general as expeditious. The men in the parties sign agreements releasing the railway company from liability for injuries sustained while using the hand cars. The length of the working day for these field forces exceeds eight hours, the limit set by the government for most of its civilian employees.

The roadway and track parties carry on the field work as outlined below. A recorder and two chainmen measure the center line, noting the station and plus at each point of switch, structure, etc., measuring the length of all side tracks and spurs and locating and taking measurements of all buildings and structures sufficiently for noting on the maps, with their size and location. Notes regarding the details of the tracks and of small bridges and culverts are also made by the recorder, while the larger bridges are left for the structural party. A party of three men in charge of an instrumentman, follows the chainmen, taking cross-section notes of all grading, ballast and bank protection with a level, rod and tape. This party completes from $2\frac{1}{2}$ to 3 miles of surveys on desert and valley lines and about one mile on mountain lines per day. The assistant field engineer carefully examines cuts containing various formations with the object of determining their proper classification. He also examines the structures, the composition of the track and fittings, the ties and the roadbed and notes their condition. Depreciation rates will probably be determined largely from tables prepared from data gathered by the Commission, due consideration being given in the case of rails and fastenings to the tonnage which has passed over them, and in the case of ties, to their size, the kind of wood, etc. The field engineers' condition notes will be of service, however, and probably will be used. Notes of the cross-section party are turned over to the computer in the field office who plats and computes as many of them as his other duties permit. After examination the platted sheets are forwarded to the district office in San Francisco where the computations of quantities and overhaul are made and compiled.

The assistant field engineer confers with the company's assistant engineer and settles with him, when possible, questions which may arise respecting the classification of grading or similar matters. If the two cannot agree the question is referred by each to officers of higher rank in order that it may be decided promptly, as it is desired by all interested that as few matters as practicable be left for adjustment after the field work is completed.

INFORMATION FURNISHED BY THE COMPANY

To assist the engineers in their investigation, the railroad company furnishes them a typewritten copy of all final construction estimates for grading, bridging and any other work done by contract and paid for upon a quantity basis. It also provides them with statements of force account work, such as for clearing, grubbing or excavation for foundations, and any available data concerning grade changes, ballasting, riprap, ditching, well drilling, pile penetration, etc., which may aid in arriving at a closer determination of the quantities and the facts than could otherwise be attained. In addition to the above the railway furnishes prints of alinement and station maps, profiles and standard and special plans; and also prints of maps and profiles of abandoned portions of the lines and of new lines substituted therefor, with a statement of grading and of other quantities in the abandoned lines and statements of quantities, with maps and sketches when necessary of any other work which has been abandoned or obliterated, as well as abstracts of agreements concerning the ownership of joint property such as crossings, interlockers, tracks and other property in which it possesses an interest, and bills of material for miscellaneous standard structures such as depot shelters, section houses, cattle corals, pump houses, etc.

The assistant engineer representing the railroad company who is attached to each roadway and track party is a man of considerable construction experience and possessing a knowledge of the work executed on this line. He looks after the company's interest generally in the field in connection with the valuation and watches to see that no property is overlooked which should

be included in the inventory. He confers with the assistant field engineer and whenever possible settles with him on the ground classification and other questions which may arise. He furnishes information relative to all disbursements for work, such as for paving of street crossings, construction of drains and the payment conditions under which industry tracks were put in, etc., when such information is not noted on the prints of maps furnished. He takes with him into the field the original notes of cross sections, pile driving records, etc., and is the responsible custodian of such documents.

The structural field party notes the condition and takes measurements of all buildings, docks, wharves, fuel and water-plants and bridges—but not culverts—in sufficient detail to supplement standard and special drawings that bills of material may be prepared referring to them; and it also inventories all fixtures and supplies in depots, noting their condition. It is furnished by the company with prints, statements and other information required to facilitate its investigation. The data secured by this party will be worked up in the district office. The party progresses an average of about five miles a day.

The duties of the company assistant engineer attached to the structural field party are in general much the same as those of his colleagues attached to the roadway and track parties; that is, he is watchful to see that no property properly included is overlooked in making the lists for the inventory and also that the assistant structural engineer is supplied with all data available to help him secure the facts he is seeking.

Under the district member of the accounting board are prepared the organization and financial histories of the common carriers; the analyses of original cost of road and equipment—that is, all expenditures chargeable to capital account; reports of earning and operating expenses and the compilation of cost data required by the engineers in fixing the unit prices for their reproduction estimates. The federal accounting force engaged in the valuation of the Salt Lake Company's property consists of a senior accountant, reporting to the member of the accounting board, and six or seven assistant accountants who carry on their work in the offices of the company's chief engineer. This force examines all books and all supporting papers relative to disbursements for construction insofar as may be necessary to verify charges to capital account and to make proper segregation as to location on the line of road and as between the various accounts, from which data will be produced a statement of original cost of the property. Unit cost data for the use of the engineers will also be deduced by the accountants from their examinations. From their investigations a statement will be produced respecting the sale of capital stock and bonds by the company, which will set forth the sums received therefor, the commissions paid and the discounts allowed; also a statement setting forth the amounts of money and securities paid for those portions of the lines which were purchased.

The valuation force of the company is under the jurisdiction of the chief engineer, whose offices are at the general headquarters of the company at Los Angeles. The chief engineer is aided by an assistant engineer in charge of valuation, who in turn has under him the company field assistant engineers, whose duties have been described, an assistant engineer and three clerks in his office. He is also aided by a chief accountant who at present has an assistant accountant. The assistant engineer in charge of valuation sees to it that all requisitions from the field for prints, statements and other data and construction records are prepared and forwarded promptly. He has frequent conferences with the senior and structural engineers respecting matters that arise, and from time to time visits the field parties and confers there with the federal and company assistant engineers attached to them. He sees that new drawings which have to be made from which to produce prints to be furnished the federal engineers conform with the specifications of the commission. When the valuation has been finished and tabulated and a copy furnished the company, it will be his duty to investigate it closely and in detail respecting matters of construction.

The chief accountant collects from the auditor's office and other sources and supplies to the federal accountants' books, vouchers and any other documents which are required by them. He discusses with the senior accountant any questions of accounting which may arise relative to the documents and together they settle them if possible, otherwise they refer them to their superiors. He and the valuation assistant engineer have frequent conferences concerning matters that are correlative to the branch of each in the valuation.

The inventory of rolling stock, equipment, shop machinery and telegraph, and right of way and real property both operative and non-operative, has not yet been undertaken, but will be later by assistants who will be entrusted with this phase of the work by the member of the engineer board in charge of the district.

From details obtained in the field and from the company's records, quantities will be computed and an estimate made therefrom in the district engineer's office in San Francisco, and the railroad company will probably detail engineers and accountants to that city to look after its interests while that portion of the work is being done.

The valuation sections into which the road has been divided have, as yet, only been tentatively fixed upon, but it is probable the present division will be adhered to. Each branch, the terminal at San Pedro and the terminal at Los Angeles, will probably be treated as a valuation unit or section, and the main line will be broken into sections of from 50 to 150 miles in length corresponding generally with the operating sub-divisions or engine districts.

It is not practicable yet to estimate the length of the time which will be required to perform the task of evaluating the property of this company nor what its cost will be. The federal forces engaged upon it will probably conclude the physical examination and the investigation of accounts by the end of this summer.

TRAIN ACCIDENTS IN JUNE¹

Following is a list of the most notable train accidents that occurred on railways of the United States in the month of June, 1914:

Collisions.

Date.	Road.	Place.	Kind of Accident.	Kind of train.	Kil'd.	Inj'd.
†12.	Atchison, T. & S. F.	Bagdad, Cal.	bc.	P. & F.	2	9
*12.	Georgia	Robinson.	bc.	F. & F.	1	8
13.	Hocking Valley	Starr, Ohio.	bc.	P. & P.	5	43

Derailments.

Date.	Road.	Place.	Cause of Derailm't.	Kind of train.	Kil'd.	Inj'd.
6.	Georgia	Madison.	unx.	P.	0	10
7.	Central Virginia	Braintree.	b. rail	P.	0	10
11.	Baltimore & Ohio	Clarksburg.	ms.	P.	0	20
13.	St. Louis & S. F.	Moccasin Spgs.	d. wheel	P.	0	31
14.	Southern	Sadler, N. C.	acc. obst.	P.	2	4
14.	Chesapeake & Ohio	Covington.	unx.	P.	1	0
19.	Southern	Whittle's.	d. track	P.	0	16
20.	Cin. H. & Dayton	Wapakoneta.	neg.	F.	0	6
*24.	Southern	Shelbyville.	fire	F.	1	2
28.	C. N. O. & Tex. P.	Richwood.	d. track	P.	0	1
28.	Louisville & N.	Moore's, Ky.	d. track	P.	2	22

The trains in collision at Bagdad, Cal., on the night of the 12th were an eastbound passenger train, No. 4, and a westbound freight. The passenger train ran over a misplaced switch and into the head of the freight. Two passengers were killed and 8 injured, one of them fatally, and the conductor was fatally injured.

The trains in collision near Robinson, Ga., on the 12th were

¹Abbreviations and marks used in Accident List:

rc, Rear collision—bc, Butting collision—xc, Other collisions—b, Broken—d, Defective—unf, Unforeseen obstruction—unx, Unexplained—derail, Open derailing switch—ms, Misplaced switch—acc. obst., Accidental obstruction—malice, Malicious obstruction of track, etc.—boiler, Explosion of locomotive on road—fire, Cars burned while running—P. or Pass., Passenger train—F. or Ft., Freight train (including empty engines, work trains, etc.)—Asterisk, Wreck wholly or partly destroyed by fire—Dagger, One or more passengers killed.

westbound freight No. 19, and eastbound freight No. 210. Both engines and many cars were wrecked. One fireman was killed and eight other trainmen were injured. A car of oil took fire, and some of the injured were rescued from the flames with great difficulty. Most of the wreck was burnt up, and a dwelling house nearby was damaged. No. 19 had run past the appointed meeting station.

The trains in collision at Starr, Ohio, on the night of the 13th were northbound and southbound passenger trains. The collision was due to failure of an operator to stop a train for an order. Five trainmen were killed and 39 passengers and 4 trainmen were injured.

The train derailed near Madison, Ga., on the morning of the 6th was westbound passenger No. 1. It was running at low speed. The cause of the derailment was not determined. Eight passengers and two trainmen were injured.

The train derailed at Braintree, Vt., on the 7th was the northbound Montreal express. The first two cars fell down a bank. Six passengers and four trainmen were injured. The cause of the derailment was a broken rail.

The train derailed near Clarksburg, W. Va., on the 11th was an eastbound express passenger. The engine was derailed at a misplaced switch, and fell against some freight cars standing on a side track. Twenty passengers were injured, four of them seriously.

The train derailed near Moccasin Springs, Mo., on the 13th was northbound passenger No. 802, and 31 passengers were injured, none seriously. A dining car and one coach broke through a trestle. The train was crowded, but the passengers in the other cars were not seriously injured. The derailment was due to a loose wheel.

The train derailed at Sadler, N. C., on the 14th of June was southbound passenger No. 29, and three coaches left the track. The engineman and fireman were killed, and one passenger and three trainmen were injured. The cause of the derailment was a loose switch rail, which had been forced out of place by a piece of iron which had fallen from a car in a freight train.

The train derailed near Covington, Ky., on the 14th was a westbound passenger. Its engine struck a westbound freight. One passenger car was overturned. The engineman was killed. The cause of the derailment was not discovered.

The train derailed near Whittle's, Va., on the 19th was northbound passenger No. 36. Two cars ran off the track to the left, and fell against some of the cars in a southbound passenger train, which was passing at the moment. The cars in the southbound train were steel, and it is said that the serious scraping of the sides is about all the damage that they suffered. The northbound cars, however, were considerably broken up. Fourteen passengers and two trainmen were injured, all of the injuries being slight, except that of a ticket collector. The cause of the derailment was buckling of the track.

The train derailed on the afternoon of the 20th of June, near Wapakoneta, Ohio, was a southbound wrecking train, and a derrick car was overturned. Six employees were injured. The cause of the derailment was failure to secure the boom of the derrick in a safe position.

The train derailed near Shelbyville, Ky., on the 24th was westbound freight No. 72. The engine and eight cars fell through a bridge to a ravine 84 feet below the track. One brakeman was killed, and two other trainmen were injured. The wreck, including most of the bridge, was destroyed by fire. The cause of the derailment was the weakening of the trestle by fire which had been started presumably by sparks from a locomotive.

The train derailed near Richwood, Ky., on the 28th was southbound passenger No. 11. The engine and two cars fell down a bank. The engineman was injured. The derailment was due to failure of the roadbed on a bank. This track had been in use seven months, and there had been no rain for two months.

The train derailed at Moore's, Ky., on the 28th was a northbound excursion train. Two trainmen were killed, and one trainman and 21 passengers injured, none of the passengers seriously. The cause was reported as a loose rail.

Canada.—In a butting collision between an eastbound passenger and a westbound freight train on the Canadian Northern, near Kamsack, Sask., on the night of the 5th of June, an express messenger and two mail clerks were killed and four other persons were injured. In a butting collision of freights on the Grand Trunk, near Kinburn, Ont., on the 21st, two firemen were killed.

RAILWAY TAXATION FOR 1913

The Bureau of Railway Economics has compiled the following table showing the taxes accrued on railways of the United States in the aggregate and per mile of line, during the fiscal year ended June 30, 1913.

RAILWAY TAXATION, YEAR ENDED JUNE 30, 1913

State	Railways of Classes I and II (Including leased and proprietary roads)			Taxes of switching and terminal companies	Total taxes
	Taxes	Mileage	Taxes per mile of line		
Alabama	\$1,546,694	4,521.83	\$342.05	\$49,196	\$1,595,890
Arizona	884,089	2,360.16	374.59	.....	884,089
Arkansas	1,765,785	4,098.54	430.83	.....	1,765,785
California	4,230,953	7,434.59	569.09	.....	4,230,953
Colorado	1,847,783	5,488.06	336.69	20,432	1,868,215
Connecticut	1,115,007	1,000.87	1,114.04	721	1,115,728
Delaware	148,945	334.97	444.65	.....	148,945
Dist. of Columbia	56,742	34.21	1,658.64	81,411	138,153
Florida	1,053,486	4,032.40	261.26	38,792	1,092,278
Georgia	1,724,971	5,953.63	289.73	40,763	1,765,734
Idaho	1,434,986	2,455.34	584.43	.....	1,434,986
Illinois	6,866,093	12,197.54	562.91	851,967	7,718,060
Indiana	4,535,497	7,429.20	610.50	183,722	4,719,219
Iowa	2,830,762	9,644.61	293.51	101,798	2,932,560
Kansas	3,401,989	8,913.20	381.68	40,465	3,442,454
Kentucky	1,636,135	3,421.94	478.13	230,267	1,866,402
Louisiana	1,486,001	4,448.11	334.07	71,698	1,557,699
Maine	1,112,211	2,249.31	494.47	42,699	1,154,910
Maryland	935,393	1,294.33	722.69	55,878	991,271
Massachusetts	3,542,864	2,085.53	1,698.78	6,396	3,549,260
Michigan	4,002,885	8,589.55	466.02	108,885	4,106,770
Minnesota	4,840,651	8,982.30	538.91	23,447	4,864,098
Mississippi	1,364,658	3,837.82	355.58	5,874	1,370,532
Missouri	2,204,457	8,010.84	275.18	178,958	2,383,415
Montana	1,874,406	4,303.57	435.55	.....	1,874,406
Nebraska	2,324,354	6,142.17	378.43	11,612	2,335,966
Nevada	931,431	2,097.29	444.11	.....	931,431
New Hampshire	862,289	1,206.95	714.44	10	862,299
New Jersey	6,824,108	2,129.49	3,204.57	35,365	6,859,473
New Mexico	970,914	3,072.00	316.05	.....	970,914
New York	10,560,490	7,921.45	1,333.15	106,483	10,666,973
North Carolina	1,327,478	4,520.76	293.64	10	1,327,488
North Dakota	1,728,169	4,954.04	348.84	.....	1,728,169
Ohio	7,800,208	9,015.37	865.21	175,979	7,976,187
Oklahoma	3,117,360	6,346.09	491.23	85	3,117,445
Oregon	1,495,146	2,335.09	640.29	88,659	1,583,805
Pennsylvania	8,497,141	10,540.97	806.11	132,114	8,629,255
Rhode Island	350,960	197.94	1,773.06	.....	350,960
South Carolina	860,854	3,157.51	272.64	23,502	884,356
South Dakota	956,242	4,160.18	229.86	.....	956,242
Tennessee	1,345,195	3,412.09	394.24	47,195	1,392,390
Texas	3,216,714	14,316.05	224.69	213,997	3,430,711
Utah	932,594	1,996.75	467.06	27,820	960,414
Vermont	386,965	924.29	418.66	.....	386,965
Virginia	2,244,539	4,115.65	545.37	13,224	2,257,763
Washington	3,751,589	4,636.20	809.19	.....	3,751,589
West Virginia	1,492,546	3,166.86	471.30	9,443	1,501,989
Wisconsin	3,855,846	7,083.91	544.31	12,074	3,867,920
Wyoming	655,992	1,624.21	403.88	.....	655,992
Total state and local taxes...	\$122,932,567	232,195.76	\$529.44	\$3,025,941	\$125,958,508
Internal U. S. Revenue Tax	4,902,055	.....	.....	183,474	5,085,529
Miscellaneous	214,303	.....	.....	.....	214,303
Canada	1,529,052	14,594.58	104.77	12,479	1,541,531
Mexico	153	51.67	3.06	.....	153
Total all taxes...	\$129,578,135	246,842.01	\$524.94	\$3,221,894	\$132,800,029

Taxes paid by switching and terminal companies are not shown per mile because of their great proportion of terminal real estate and also because report of miles of first main track of these roads is not required by the commission.

Railways of Classes I and II include respectively roads having annual operating revenues above \$1,000,000 and those having annual operating revenues from \$100,000 to \$1,000,000. The mileage given for these two classes of roads is miles of line, that is, miles of first main track owned, including branches and spurs. Taxes have not been apportioned per mile of track because the Interstate Commerce Commission does not require reports of miles of track by states.

Class III roads are omitted, because their taxes are only about two-thirds of 1 per cent. of the aggregate.

Total state and local taxes per mile of line amounting to \$529.44 in 1913 show an increase over 1912 of \$26.49, or 5.27 per cent., and over 1911 of \$70.50, or 15.36 per cent.

Making Provision for Emergency Grain Cars

The Rock Island is Fitting Up Stock and Automobile Cars to Meet the Pressing Needs in Its Territory

By W. J. TOLLERTON

General Mechanical Superintendent, Rock Island Lines, Chicago, Ill.

The heavy grain crop in the West this year has caused not a little anxiety among the railroads extending through the farming sections in connection with proper and prompt handling of the grain to the markets. The majority of our railroads, of course, own and operate rolling equipment for the transportation of all classes of freight; therefore, when it becomes necessary to make extremely heavy shipments of one particular commodity requir-

but the construction must be such as to eliminate any possibility of damage to the lading from the elements.

The proper fitting up of a box car for grain shipments is merely the placing of the car in a reasonably perfect condition, which is the regular procedure; but making cars which were not originally designed for hauling grain suitable for this purpose is entirely another proposition. The Chicago, Rock Island &

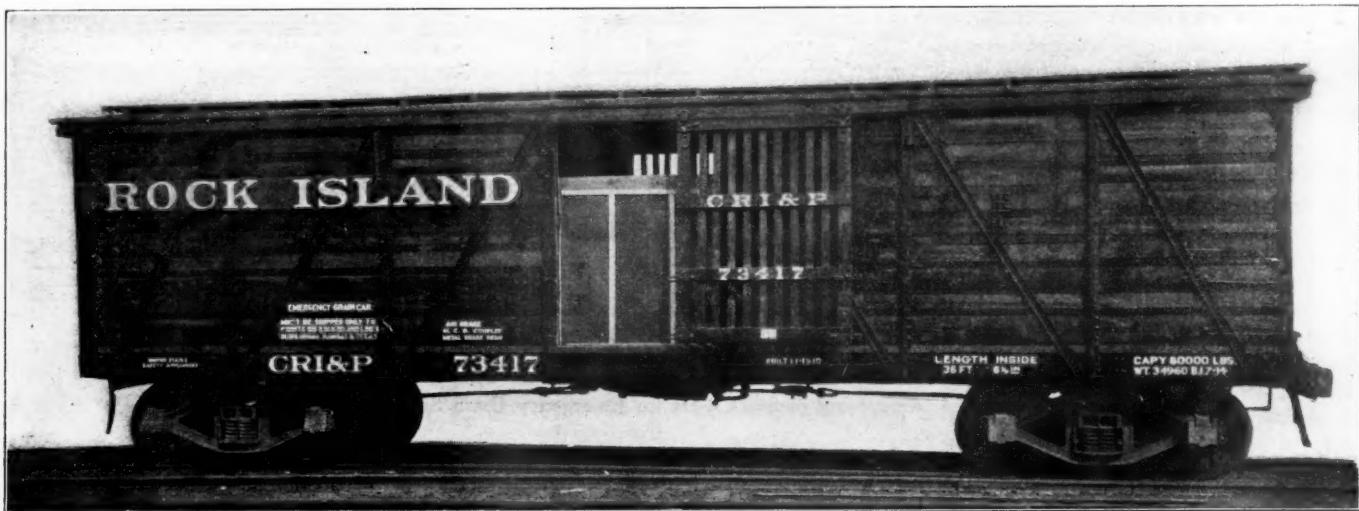


Fig. 1—Stock Car Coopered for Handling Grain

ing a special class of car, it is often necessary to go to extremes in fitting up cars for the transportation of this freight.

The bulk of the grain is shipped when harvested; therefore, the railroads are called on to furnish an enormous number of cars in a comparatively short period of time. To better meet the demand, all repair shops and yards are required to give box cars preference in order to reduce the bad order cars of this

Pacific, in order to take care of extreme necessities of grain shipments, is now fitting up stock and automobile cars for this purpose.

The stock cars are first thoroughly cleaned, removing all odors, and are given any required repairs. They are then ready for

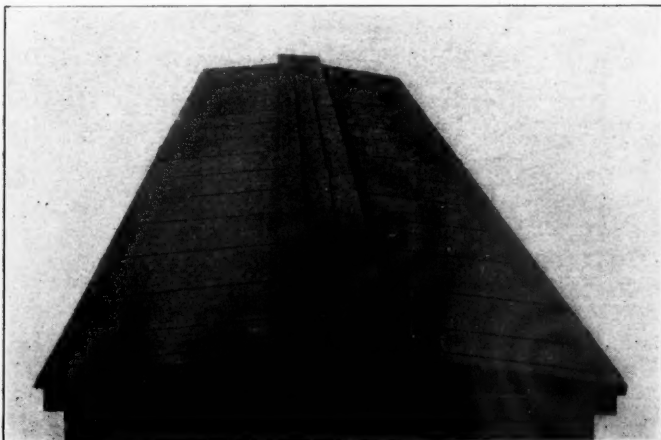


Fig. 2—Roof of Stock Car Equipped for Handling Grain

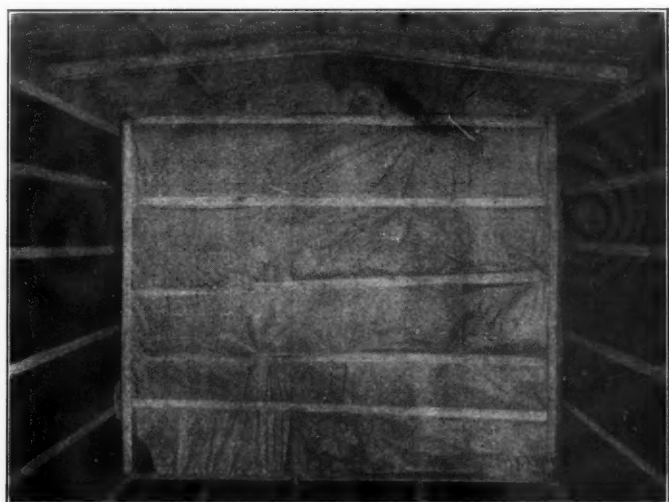


Fig. 3—Interior of Stock Car Equipped for Handling Grain

class to a minimum, and all box cars turned out must be in condition for hauling grain. Not only must attention be given to the bad order cars, but all box cars, regardless of their condition, are carefully inspected, repaired and coopered for carrying bulk grain. The car must not only be rendered grain tight,

proper coopering. Strips of wood of proper width are fitted between the slats of the frame of the car; and the inside, with the exception of the ceiling, is completely covered with an odorless tar felt waterproof paper, this paper being secured by means of laths tacked over it. A heavy lath is used on the floor to protect

40-ton capacity cars, having large double doors at one end and 12-ft. side doors. One of these cars is shown in Fig. 5. It was necessary to apply a wooden bulkhead up to the end plate at the end door and properly cooper with paper. The bulkhead consists of $1\frac{3}{4}$ in. decking extending crosswise of the car from the floor

for grain loading, are properly stenciled, the stock car as an emergency grain car and the automobile car as being equipped for grain loading. It is, of course, necessary to paint grain lines on the inside and to reweigh the cars before placing them in service. A total of 500 automobile and 300 stock cars has

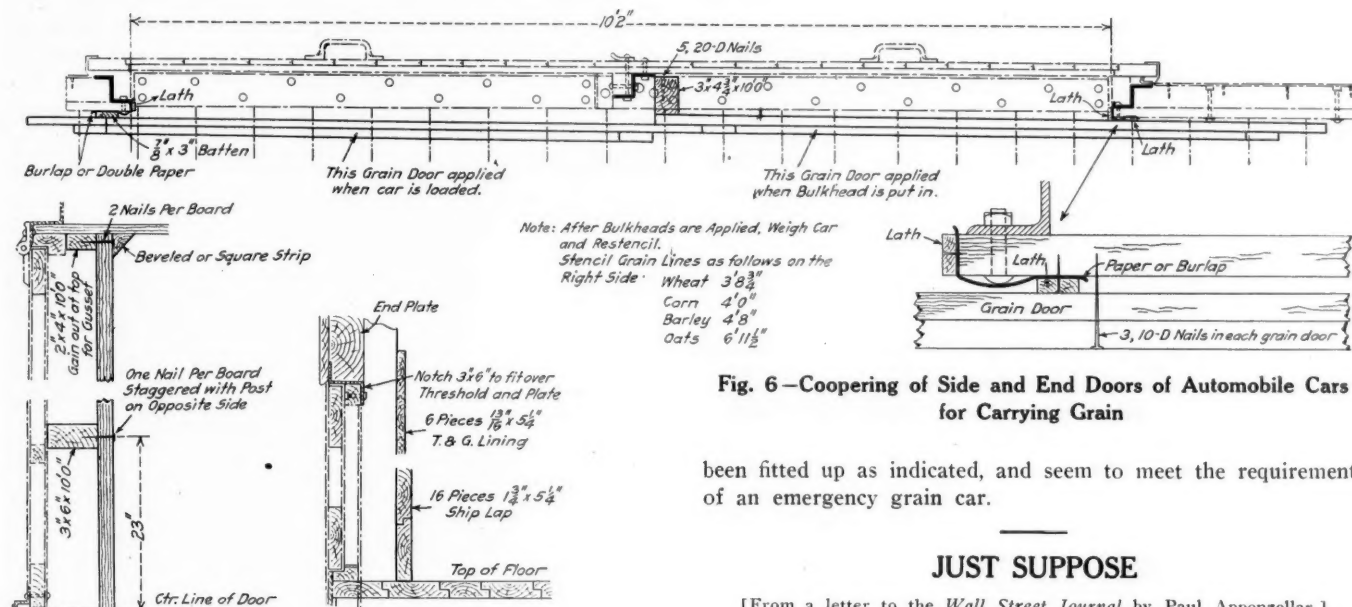


Fig. 6—Coopering of Side and End Doors of Automobile Cars for Carrying Grain

been fitted up as indicated, and seem to meet the requirements of an emergency grain car.

JUST SUPPOSE

[From a letter to the *Wall Street Journal* by Paul Appenzeller.]

Suppose that along with other investigations a committee of business men would investigate Congress, bringing out a record of all errors of judgment and instances of inefficiency. Supplied with as large a stock of adjectives and adverbs as the Interstate Commerce Commission what kind of a report could be written?

Suppose that someone asked the President to reconcile the law against unfair business competition (say the New Jersey statute) which he has had enacted, with the government's action in placing the post office in competition with the express companies by naming rates lower than the actual cost of doing the business.

Suppose that when passenger rates on railroads were ordered reduced some one had suggested that a reduction be made in the 20-cent per mile allowance to Congressmen.

Suppose that some one investigated William G. McAdoo's business record—investigator to be an original holder of Hudson & Manhattan securities.

Suppose that the Interstate Commerce Commission were considering a petition from the American Federation of Labor asking for an increase in wages throughout the United States. How long would they take to hand down a decision and what would be the chance of its being unfavorable to the American Federation of Labor?

Suppose that instead of Mr. Gompers, a captain of industry had sat in the gallery of the house and checked off the members as they voted on a bill to exempt from the operation of the law a special group of citizens?



Fig. 7—Method of Closing Part of Side Door in Automobile Cars

To this center post and door post one set of temporary grain doors is secured. On the other door post is secured a wooden strip the full length of the post and of a thickness equal to the temporary grain doors so that the second set of grain doors, applied when the car is loaded, will be parallel to the side of the car. Fig. 7 shows the temporary grain doors as applied to one-half of the side door.

Both the stock and the automobile cars, after being equipped

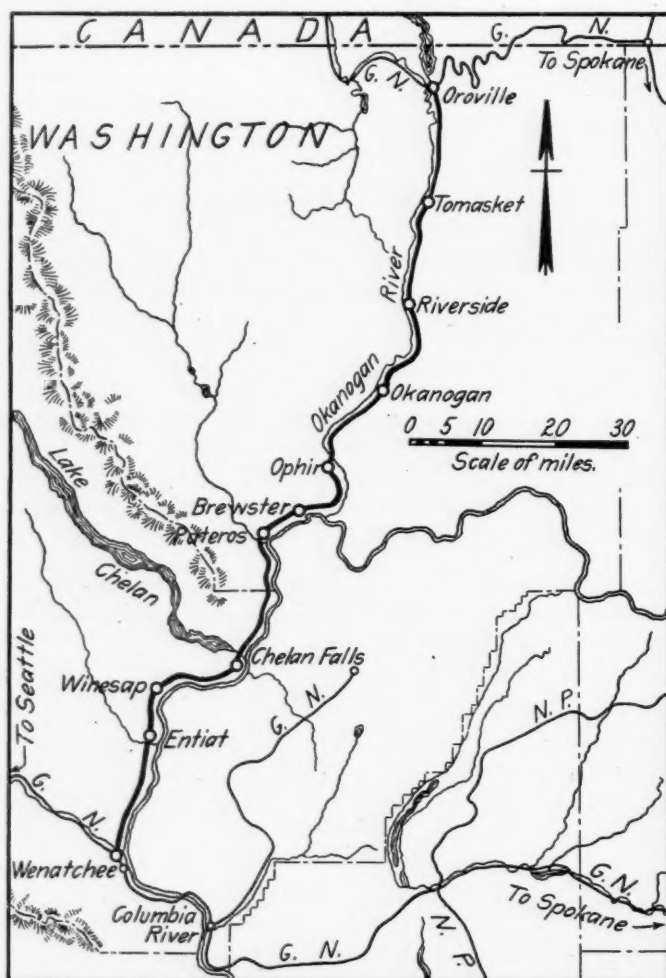
LONG DISTANCE TRAVELING ON ENGLISH RAILWAYS.—The story is told of an English gentleman who recently contrived to cover 1,008 miles in $22\frac{1}{2}$ hours of traveling. Leaving the London St. Pancras station by the midnight Scotch express, he reached Leeds (196 miles) at 4:03 a. m., from which he commenced his return to London seven minutes later. He arrived in the metropolis at 8:15 a. m., and at 9:30 was on his way to Carlisle (308½ miles) which was reached at 3:50 p. m. In eight minutes he took the 3:58 train and arrived at London at 10:25 p. m. It might be possible to improve upon this record in America, and perhaps in England. It is to be doubted, however, whether American railroads could produce as remarkable a record of punctuality.

New G. N. Line from Oroville to Wenatchee

Road Serves an Area Previously Without Facilities,
Providing Low Grade Line from British Columbia East

The Great Northern has been working for three years on the construction of a line north from Wenatchee, Wash., to Oroville. The main line of the Great Northern crosses the state of Washington from Spokane to Seattle north of the Northern Pacific and St. Paul roads, and about 100 miles south of the Canadian border. A branch line of the Great Northern runs north from Spokane to the international border and then west, generally parallel to this border to the Cascade mountains. A third line runs north from Seattle along Puget Sound to Vancouver, while another line is now building east from Vancouver to a connection with one extending west along the international boundary. With the exception of a few branch lines of the Northern Pacific along the western coast and one adjacent to

orchards, although the only transportation heretofore has been daily packet service on the Columbia river as far north as Brewster, and stage transportation beyond. This new line starts from a connection with the main line at Wenatchee and extends north along the west bank of the Columbia river to Brewster, from which point it follows the Okanogan river to a



Map of Wenatchee-Oroville Line of the Great Northern

the main line of the Great Northern from Spokane west to Adrian and a short branch of the Great Northern east of the Columbia river, this area 200 miles long by 100 miles wide has been without railway facilities. While this area includes the Cascade mountain region, much of it is productive land suitable for wheat and fruit raising.

Early in 1910 the Great Northern undertook the construction of a new line extending through the center of this area north and south. Due to various complications, actual construction work on the southern half of this line was delayed until the spring of 1912, and the grading for the entire line has only recently been completed. This road will provide transportation facilities for a large area, much of which is already set out in



One of the Tunnels With Highway Overhead

connection with the east and west line along the border, at Oroville, a total distance of 134 miles.

With the completion of the new line, the Great Northern has two lines from Oroville to Spokane. The older line running east along the boundary has heavy grades and curvature, and is therefore expensive to operate. The new line from Oroville to Wenatchee is built with a maximum grade northbound of 0.4 per cent., and southbound of 0.3 per cent., and with 4 deg. curves the sharpest, except at M. P. 40, where three 5 deg. curves are inserted. As southern British Columbia, through



Typical Point Projecting into River

which the old line passes west of Oroville, originates much fruit and other traffic, it is expected that a large proportion of this will eventually be sent over the new line via Wenatchee to Spokane. Thus, in addition to providing railway facilities for a large area previously undeveloped, this line also gives a low grade outlet for a considerable amount of traffic.

Owing to difficulties in completing negotiations with the state

for certain necessary changes in the state highway near Wenatchee, work was started first at the north end of the line. The grading of that portion of the road between Oroville and Pateros was started in 1910, but due to the delays in completing negotiations further south the work at the north end was not pushed and the bridges and track laying on this section were not completed until early in the spring of 1913. Grading on the portion of the line south of Pateros was started early in 1912, and was completed late in the fall of 1913. All track has now been laid.

The relocation of Washington State Road No. 10 was the



Bluff Debris Encountered on Mile 23

most complicated problem in the construction of this line of railroad. At frequent intervals throughout the lower 27 miles of the line the railroad location occupied the highway, and necessitated the relocation of the highway. The points where relocation was necessary were usually around steep rock bluffs, and building of the railroad at such points was rendered about doubly expensive and very complicated by providing a roadbed for the highway, as well as for the railroad. In all 13 miles of wagon road was rebuilt in three stretches, at a total cost of over \$100,000. The accompanying photographs show the railroad with reference to the reconstructed highway at some of the steepest bluffs. It was necessary to maintain continuous traffic over these highways, so the new roads had to be built before the old ones could be abandoned, which, of course, had to be done before the railroad grade could be built. The specifications under which the new highway was built were furnished by the state engineer, and required a roadbed 10 ft. wide, with frequent turnouts, 100 ft. long where the roadbed is 16 ft. wide, and protected with a substantial fence on the embankment side. The maximum gradient allowed on the wagon road was 7 per cent.

At Destruction Point, a few miles north of Wenatchee, it was necessary to move over 200,000 cu. yd. of rock and one steam shovel worked at this point for nine months. It was

necessary to relocate the highway up on the face of the bluff and the location was so confined at this point that after the highway was completed and placed in service it was necessary to lay a narrow gage track in it and plank it over for the use of the contractor in excavating the first cut for the railroad alongside, by loading into cars standing on the highway. In this way, however, the highway was kept in service with the exception of one day when the shovel was moving down the highway to cut in. In that portion of the line north of Knapps Hill the new highway extended across a bay in the river where one fill of 200,000 cu. yd. was made in deep water.

Grading on this line of railroad is light on the northerly 76 miles, which is through the Okanogan valley. The 58 miles south of Pateros is heavier—the grading on this stretch amounting to 3,194,000 cu. yd. of material, 50 per cent. of which was rock. With the exception of relatively heavy work at one point, near Wenatchee, and for a short distance north of Knapps Hill, Mile 27, these quantities were quite evenly distributed over



Typical Rock Formation Encountered at Tunnel Portal

the distance. About 90 per cent. of the material was moved by steam shovels and the remainder by station men. Ten steam shovels in all were employed.

Three tunnels of 442 ft., 755 ft. and 383 ft., respectively, were required. All three were driven from top headings, working from one end only. The southerly tunnel was driven entirely by hand. As the material encountered was solid rock it was only necessary to line the portals with timber. The hard character

of this material is shown in one of the accompanying photographs.

Five rivers are crossed which require truss bridges. The Wenatchee river is crossed about $2\frac{1}{2}$ miles north of Wenatchee, on three 150-ft. Howe truss spans. At Entiat the line crosses the Entiat river on one 150-ft. Howe truss, while the crossing of the Chelan river at Chelan Falls is made on three 150-ft. and one 100-ft. Howe truss spans. The Okanogan river is crossed near Wakefield on two 60-ft. and one 190-ft. Howe trusses, the latter being a draw span. The Methow river is crossed at Pateros on one 150-ft. through Howe truss and one 100-ft. through Howe truss. These bridges were all built of



Howe Truss Bridge Across Wenatchee River

dressed timber, creosoted. The timbers were framed in the material yard at Olds, and after framing all exposed surfaces were given a further brush treatment with creosote. Timber trusses are unusual in most parts of the country, but the arid climate here gives these structures a relatively long life, while fir timber is comparatively cheap, and steel high in price on account of the long haul. Several large timber bridges have recently been built in this vicinity, notably that of the O.-W. R. & N. across the Columbia river, near Kennewick. The photograph of the Wenatchee river bridge shows a typical structure on this line, supported on pile foundations and surrounded by cribs filled with rock, which are in turn protected by heavy riprap.

Corrugated iron culvert pipe was used for small openings under all fills up to 15 ft. in height. Above that height, cast iron



Typical Heavy Highway Reconstruction Work

pipe was used for openings up to 36 in. in diameter. A few small concrete culverts were built at points requiring larger openings than these pipes.

The stations were located at intervals of about five miles, at which points the grading was completed for a 2,000 ft. passing track and a house track, although with the exception of Entiat, only the passing tracks were laid. No intermediate yards or fuel stations were built between Oroville and Wenatchee, but water stations were built at intervals of 20 miles. With the exception of one gravity supply, the water was secured from wells as the river was either too far distant or the lift was too great.

The track was laid with 68-lb. rail on fir ties and gravel ballast by the contractor, using a Roberts track laying machine.

The line was built under the direction of A. H. Hogeland, chief engineer, of the Great Northern, and Ralph Budd, formerly chief engineer, and now assistant to the president; A. F. Whitcomb was district engineer in immediate charge; Guthrie, McDougall & Company, of Portland, Ore., were contractors for the grading, bridge work and track laying.

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION

A report of the opening sessions of the Tool Foremen's Association convention was published in the *Railway Age Gazette* of July 24, page 168. Following is a report of the concluding sessions:

TOOL ROOM GRINDING

W. C. Diebert (Chesapeake & Ohio): Considerable difficulty is experienced in grinding tools without automatic machines. At Clifton Forge, Va., we have made a surface grinder, an automatic reamer grinder, a small die grinder and a grinder for the Ingersoll milling machine cutters. This latter machine will cut up to 14 in. in diameter and grind the radius on the cutters used in channeling out driving rods. Wheel lathe tools are given an angle clearance of 7 deg.

J. C. Bevelle (El Paso & Southwestern): The tools issued from the tool room on check are all ground in the tool room. To insure a reasonable life for a drill it should be properly ground at the point. The two cutting edges must be exactly of the same length and should be at an angle of 59 deg. for ordinary purposes. The angle of lip clearance should be about 12 deg. This angle, however, should gradually increase as the center of the drill is approached until the line across the center of the web stands at an angle of 135 deg. with the cutting edges. For heavy cuts in soft material the angle of lip clearance may be increased to 15 deg. The failure to give sufficient angle of lip clearance at the center of the drill is the principal cause of splitting drills up the web. Standard reamers should be kept sharp and properly ground, otherwise a great deal of time will be wasted by the men using them. In the shop at El Paso, Tex., the reamers are not placed in the rack until they have been inspected and put in first-class condition.

Owen D. Kinsey (Illinois Central): Our grinding machinery is placed as far from the precision machinery as possible to avoid trouble from dust and it is in a position to command good light and ventilation. The spindles of all the grinding machines have been made standard so that the grinding wheels may be interchanged. They are also provided with substantial safety hoods and fixtures for every operation. Instructions have been posted on each machine showing the belt position for grinding wheels of different diameters. Success or failure in grinding operations depends directly on the proper selection of wheels for the particular work in hand. We have found that a cool free cutting wheel is the most economical in the long run, even though the wheel life is shorter. The heaviest cutters we handle are 10 in. by 20 in. peg cutters. These are ground on a Bath universal grinder using a radius arm projecting from an arbor upon which the cover is mounted.

Thomas F. Eaton (Baltimore & Ohio): There are 70 grinding wheels in service at the Baltimore shops and it has been found expedient to have one man inspect all the wheels throughout the plant rather than to have each department look after its own. By this means we are kept posted as to the condition of the bearings, the safeguards and the balance of the wheel and are enabled to keep the wheels in safe and efficient running condition. A large number of high speed steel frame reamers and drills have been reclaimed by welding new shanks on by the oxy-acetylene welding process.

Discussion.—Many of the members have experienced considerable difficulty in grinding high speed steel wet, it being found that the tools will split and chip off. For that reason

it was believed to be better practice to do this work dry, being careful not to over-heat the metal. Care should also be taken to see that the right kind of grinding wheel is used. Many of the members favored a soft wheel. Some believed that much better results could be obtained by honing the edges of tools with a soft stone to take off the wire edge. This has been especially successful on slab millers, they having been found to give much better service both in the work done and the maintenance of the cutting edge.

SAFETY FIRST IN GRINDING

R. G. Williams, safety engineer of the Norton Company, Worcester, Mass., gave an illustrated address on safety as applied to grinding wheels. He stated that the manufacturers, immediately before packing grinding wheels, submit them to a speed test in which the wheel is revolved at a speed which subjects it to between three and four times the centrifugal stress it will be subjected to under actual working conditions. Defective wheels break under this test. After completing a test a record is made of the order number and other data connected with the wheel, and each testing sheet is taken before a Justice of the Peace and the man doing the testing work is required to swear that he has made a true record of his work. The manufacturer thus has on record a sworn statement of every test made.

In considering grinding wheel breakages, 15 causes were discussed and a number of illustrations were shown. Among the causes for wheel breakages may be mentioned the wheel receiving a blow on the side, improper adjustment of the work rest, heating of the wheel from forcing the work, the wheel running out of true, and the mounting of the wheel so that the nut works loose. The matter of protection devices was taken up, tests having been conducted to prove the relative value of hoods and flanges as protectors in case of breakage. These tests indicated that protection hoods provide greater safety than do safety flanges.

MACHINE TOOL REPAIRS

J. B. Hasty (Atchison, Topeka & Santa Fe): All machines are taken to the tool room for general repairs, dismantled, and all the serviceable parts used. Small cast iron gears that require renewal are replaced with steel. Light repairs are made throughout the shop by repairmen from the tool room. All repairs and renewals to shop machinery and tools are charged to a separate account, the different departments being designated by letters. The machines have serial numbers and a record is kept as to their location and the work done on them by the repair department. The classes of repairs are designated by numbers 1, 2, 3, 4 and 5, according to the amount of work done.

John Tothill (Buffalo, Rochester & Pittsburgh): Plenty of shop space should be allotted to this work and it should be thoroughly equipped with the necessary tools, appliances, etc. Every machine should be given a shop number when purchased and an accurate record kept by the man in charge of machine repairs as to the amount expended on each machine. A full set of catalogs of all tools in service covering repair parts should be readily accessible to the repairman so that he can order new parts promptly. He should be ready with new parts of tools that are wearing fast, thereby causing a minimum delay to the work.

G. W. Smith (Chesapeake & Ohio): Machine tools require much more repairing at the present than in former years owing, principally, to the introduction of high speed steel and greatly increased speed. In the majority of the cases it does not seem to be the upkeep incident to long service so much as the breakage resulting from overstrain. In order to overcome this we strengthen, wherever it is possible, broken gear wheels, worm wheels, worms and racks by making them of Bessemer steel. It is a serious mistake to operate a machine that is in a very bad condition, but it is often difficult to work on these machines, as they can seldom be spared.

Discussion.—While many of the members replace broken parts

by duplicate parts made of stronger material it was pointed out that it was not always advisable to do this. Sometimes a part is purposely made weaker than another so that when any undue strain is placed on the machine it will be the part to fail. If this part was strengthened the next time the machine was subjected to such strain some more intricate part might be damaged which would cost a great deal more to replace. On new machines that were especially designed for the work they are doing it was deemed best to replace any broken parts with exactly the same kind of material as was used in the first place. On the Rock Island at Silvis one man is detailed to constantly inspect all the machinery, pumps, engines, etc., making note of the parts that are becoming worn and that will have to be replaced. By doing this it is possible for the repair gang to anticipate many failures and place a machine in good condition a short time after it fails.

DISTRIBUTION OF SHOP TOOLS

Henry Otto (Atchison, Topeka & Santa Fe): The tool room of a locomotive repair shop is one of the most important, but oftentimes one of the poorest equipped and most neglected departments in the whole shop. In many instances it is located in an out-of-the-way corner, causing the workmen who are in need of tools to waste time going back and forth. In properly planning a tool room it is necessary to consider the distribution and care of the small tools, the special tools, jigs, air motors, hammers, etc. A practical checking system should be installed to keep a record of all tools issued.

W. E. Ross (Baltimore & Ohio): The messenger system for distributing tools, if perfected, will give much better results than having the men call for their tools. The messenger boys are stationed in the tool room and are called to various parts of the shop by means of an annunciator.

John W. Nutt (Chicago Great Western): The tool room counter over which the tools are handed out should run the full length or width of the tool room and should be so arranged as to permit the placing thereon of the tools most frequently called for, such as hand taps, dies, studs, gages, etc., so that they shall at all times be accessible to the tool passer. Various other tools may be placed on revolving racks located immediately behind and parallel to the tool room counter, readily accessible to the tool distributor. Each gang foreman in the erecting shop should have a tool cupboard where tools, such as wrenches, hand punches, a set of die nuts, set nuts, etc., may be kept. No method of handling tools, however good, will operate successfully without the hearty co-operation of department foremen who should be watchful of the care the tools are given while in the hands of the men under their jurisdiction.

Discussion.—All the members were practically agreed that in order to get the best results in the distribution of tools the tool distributor must have the co-operation of all the foremen in the shop in order that the tools may be properly used and returned to the tool room. Various methods of accounting for the tools were mentioned. The tool distributor himself should be very tactful with the workmen coming to the tool room for tools, and should treat them so they will be interested in returning the tool in good condition. The tools should be handy to the distributor, so that he may fill the requests as quickly as possible. Also the tool room should be so located that the men will not waste much time in getting the tools they desire.

COLD PUNCHING DIES

B. Henrikson (Chicago & North Western): The cold punching dies in use at the Chicago shop of the Chicago & North Western might be divided into three different classes as follows: Boiler sheet punching, sheet iron copper and brass, leather and rubber punching. In boiler sheet punching the first important item is to choose the proper kind of material. The best steel to use in boiler punches is one of low carbon content, about 85 points, for both the punch and the die, which should be hardened. The temperature at which the hardening is done should be determined by

the carbon content. The approximate temperature should be between 1,700 and 1,800 deg. Fahr.

The punches used for sheet iron, tin, copper and brass, are commonly called "blanking" dies. This type of die should preferably be made of a special steel of high carbon content, about 110 points. The method of manufacture varies according to the type of the die. The die is sometimes forged to shape and other times made directly from stock. The tempering of these dies should be carefully done in order to avoid warping. The electric furnace is generally used to heat the dies to the required tempering temperature which should be between 1,400 and 1,500 deg. No clearance is allowed between the punch and the die in this case. For dies on sheet iron a slip fit should be allowed. Both the die and the punch should be hardened. For dies used in punching tin the fit between the punch and the die should be tight. The plunger is left soft, only the die being tempered. By doing this it is possible to upset the punch by hammering when either the punch or die becomes worn. The method of making dies for leather and rubber is practically the same as that used in making blanking dies.

Discussion.—As a general rule, a clearance of one-tenth of the diameter of the punch was recommended.

CLOSING EXERCISES

An interesting paper was presented on "Special Tools for Drilling, Reaming and Milling," consisting almost entirely of descriptions of tools that have given particularly good service. The discussion on this subject brought out the great opportunities of milling machine work, one member stating that he had doubled his output by designing cutters for milling machine work, having found it necessary to increase all the arbors used for these cutters to 1½ in., so that a heavier cut could be taken.

The following officers were elected for the ensuing year: President, Henry Otto, Atchison, Topeka & Santa Fe, Topeka, Kan.; first vice-president, J. J. Sheehan, Norfolk & Western, Roanoke, Va.; second vice-president, C. H. Shaffer, general tool inspector, Illinois Central, Chicago; third vice-president, J. C. Bevelle, El Paso & Southwestern, El Paso, Tex.; secretary-treasurer, Owen D. Kinsey, Illinois Central, Chicago. The next meeting will be held in Chicago some time during July, 1915.

PRESIDENT RIPLEY ON WAGE DEMANDS

The following statement by E. P. Ripley, president of the Atchison, Topeka & Santa Fe, was published in the Chicago *Herald* on July 26:

"What position the transportation industry is in today is told in a nutshell by the simple figure of operating ratio. Total operating revenues of the railways in the fiscal year just closed, as compiled within the last few days by the bureau of railway news and statistics from the official reports to the Interstate Commerce Commission, at \$3,000,000,000, stood almost \$80,000,000 below that for the preceding fiscal year.

"To do the smaller business, operating expenses were entailed which were more than \$35,000,000 higher than the year before. Taxes continued their advance and after their deduction the remaining net income fell \$130,000,000 below 1913. Here is a ratio between expenses and revenues of 72.33 per cent., against 69.40 per cent. the year before, and if taxes are added the ratio jumps to 76.91 per cent.

"Yet in the face of such a showing we have the engineers and firemen threatening to tie up the railways of the West if their demands are withheld.

"The demand in the present instance is from the men who already have the highest pay of any organized labor on the railroads; and who already have the highest pay for the quality of work demanded that can be found in any industry.

"It has been estimated—I am not vouching for the correctness of the estimate, for I did not make it—that the western roads would have to pay out about \$33,000,000 a year more in

compensation than they pay out now, were these demands to be met, and the total \$33,000,000, of course, would necessarily be a clean loss in net.

"But this is not the worst of the difficulty. It is a question whether this class of labor, that is, the engineers and firemen, are not already overpaid as compared with the great mass of other labor on the railways. We have advices to the effect that if this advance is granted to the engineers and firemen there will next be camping on our doorsteps several times as many conductors and trainmen, to say nothing of station agents, clerks and machinists of all kinds. So the estimate of \$33,000,000, if granted to the engineers and firemen, will be likely to be found on final analysis more nearly \$100,000,000.

"It doesn't require any special knowledge of arithmetic or extraordinary power of prevision to see where this will land us. The result would be that the strongest roads would be crippled and the weakest, to use an unvarnished phrase, would turn up their toes.

"The poor results for the last fiscal year simply show what might be expected. There has been a depression in general business, such as has recurred at intervals ever since I've known. The railroads have been entirely unable to resist, because they have been hammered continually by lawmaking bodies of one kind or another. In our experience with the Interstate Commerce Commission and with the various state commissions there has been a constant, increasing whittling away of our rates.

"On the other hand, taxes are enormously high and show no check in the tendency to increase. Our own records show that the percentage of increase in taxation during the five years ended June 30, 1912, was slightly over 68 per cent. There has been no diminution of this burden since; on the contrary, the advance has continued. Taxes in the year to June 30, 1913, reached \$4,662,152, a sum equivalent to 11.8 per cent. of the operating income for the year and exceeded taxes of 1912 to the extent of 10.8 per cent.

"The crux of the trouble is not far to seek. It is stated in the fact that the Interstate Commerce Commission has enormous powers, with no responsibility. With all its dominion it does not hold itself in any way responsible for the success or failure of the enterprise it controls.

"Yet our expenses to assist it in its work of regulation have mounted until now we alone are paying \$250,000 a year for the privilege of being regulated."

TEXT OF COMMISSION'S ACCOUNTING ORDER

In re the Separation of Operating Expenses. Opinion by the commission:

Statistical circular No. 3, issued by the commission through the division of statistics, contained a proposed order requiring railway companies having annual operating revenues of \$100,000 and over, covering roads of classes I. and II., to report to the commission separately the greater portion of their freight and passenger expenses, certain common expenses being left unapportioned. A copy of this circular was sent to all railroad companies of these classes under date of March 19, 1914. In order that the subject might be thoroughly discussed a public hearing was held before the commission in Washington on May 2, 1914. Briefs were filed both before and after the hearing.

The question before us is not new. Prior to 1894 a separation of freight and passenger expenses was made in the reports of the carriers. From 1888 to 1893, inclusive, the results of this separation were published by the commission in its annual statistical report. The rule which was followed in the separation as made at that time is quoted below:

All expenses which are naturally chargeable to either freight or passenger traffic should be entered in their respective columns; expenses which are not naturally chargeable to either traffic should be apportioned on a mileage basis, making the division between freight and passenger traffic in the proportion which the freight and passenger train mileage bears to the total mileage of trains earning revenue.

Soon after this separation of expenses was inaugurated railroad accountants began to suggest that it be discontinued. As early as 1890 a committee was appointed by the National Association of Railroad Commissioners to report upon the question. At the fourth annual convention of this association in 1892 the subject was actively discussed. It was not until 1893, however, that it was finally disposed of by the adoption of the report of the committee that the practice be discontinued. Under date of February 12, 1894, the statistician of the commission advised the carriers that thereafter a separation of operating expenses between freight and passenger service need not be made.

From an examination of the early reports of the carriers, it is clear that the belief of those making the returns was that only a very few expenses were "naturally chargeable" to one service or the other. An arbitrary division of all, or nearly all, expenses on a train-mileage basis is useless, and the discontinuance of the separation at that time was undoubtedly justified. During the last 20 years, however, railway accounting and accounting generally have greatly developed, and for this reason a reconsideration of the matter at the present time seems warranted.

The arguments advanced in support of a separation of the expenses at the present time were that it would be a material aid in the determination of the cost of railway services, not only as between the two services—freight and passenger—as a whole, but also in determining the cost of particular classes of traffic, for the reason that the separation of freight and passenger expenses is fundamental in all cost of service inquiries. That the authoritative formula would simplify their work to a certain extent in rate cases is the argument urged by some of the carriers for a general separation between freight and passenger services of all operating expenses, leaving none unapportioned. It was also claimed that the proposed reports would be of assistance in the study of comparative costs among railways.

The argument was advanced by one carrier that it is desirable to compare only total expenses with total revenues. The proper revenue of a carrier having then been determined, rates should be made in the various branches of the traffic solely on the basis of public utility. We do not believe, however, that sufficient reason has been given for abandoning the policy consistently pursued by the commission of giving consideration to cost in establishing rates. What weight to give to the cost factor depends upon the particular case. The question now before us is the practicability of providing for the ascertainment of cost figures in the general manner indicated in circular No. 3.

In the case of manufacturing concerns it has been shown to be practicable to make some estimate regarding the cost of the individual articles manufactured. This is done not only as a basis for comparison of the efficiency of various departments, but also as a basis for ascertaining at what price the manufactured product should be sold. This naturally suggests the question whether it is not possible to pursue the same or similar methods in the accounting of railway companies. There is probably a difference in the extent to which the ascertained cost could be utilized as between manufacturing and railway companies, for the reason that a manufacturer may discontinue to manufacture a product which he finds to be unprofitable, whereas a railway may be compelled to continue an unprofitable service.

The actual practice of railway companies is helpful in the consideration of the question now before the commission. For approximately one-half the mileage of the large carriers in the United States, operating expenses are now being divided between freight and passenger service. Among the railroads which make this separation are the Pennsylvania lines east and west, the Erie, the Baltimore & Ohio, the Louisville & Nashville, the Chicago, Burlington & Quincy, the Great Northern, and Northern Pacific. On the other hand, the New Haven, the Boston & Maine, the New York Central lines, the Southern, the Union Pacific, and Southern Pacific systems do not make a complete separation of all of their operating expenses between passenger

and freight, although some of the important transportation accounts may be kept separately for the two services.

The officials of the roads which make this voluntary separation state that it is done in order to secure efficiency and not for rate-making purposes. If the comparison is made on the same basis year after year, these officials state that it is not important whether the arbitraries which are used are exactly correct or not. To their minds what is exact enough for efficiency purposes could not be considered sufficient as a basis for rate making. It was also argued that the method of keeping these statistics is different when made for efficiency comparisons from what it would be when made suitable for cost of service accounting. Nevertheless the impression seemed to prevail that circular No. 3, as submitted to the carriers, does not conflict with efficiency accounting.

It is erroneous to suppose that the commission is interested in statistics of this character merely for the purposes of rate making. The statistics would be valuable in making comparisons from year to year for the same railroad and for different roads in the same year. It is the duty of the commission to keep itself informed regarding the manner in which the railway business is conducted, and a knowledge of the variations in unit costs is valuable to us even if no rates are based thereon.

The assumption that railway cost accounting cannot be made sufficiently accurate for useful consideration in dealing with rates does not seem warranted. Although not possible 20 years ago, it would appear that at the present time approximately two-thirds of the operating expenses of a railroad can be separated in a reasonably satisfactory manner. The separation of the remaining one-third is useful if a basis is selected which equitably measures the use which either service makes of common facilities. This indicates the extent to which freight expenses can be subdivided among the various branches of freight traffic. Just as fuel, wages, and other direct expenses can be ascertained as between freight and passenger trains, so can they be distinguished as between individual freight trains.

It was urged that should the commission really need information concerning costs, a special study could be undertaken at any time and be pursued until the requirements of the individual case had been met. Special studies will always be necessary, but they cannot take the place of general statistics systematically compiled year after year. The latter, so far as they are applicable, are looked upon as more reliable than those which are collected for any particular case. Whether rightly or wrongly, "special purpose" statistics rarely command that confidence which inheres in figures that are kept continuously on accepted bases without reference to a particular controversy.

It was suggested at the hearing that the commission should wait until the courts had rendered decisions in certain pending rate cases before making a requirement of this character. What the courts have said must carefully be considered and conformed to. As to the cases before the courts at the present time, we believe that the courts have a right to look to this commission and to the various state commissions for a careful study of railway statistics and accounts. What the Supreme Court said in the *Minnesota Rate case*, *Simpson v. Shephard*, in regard to the distribution of capital charges is an incentive to proceed with the work. The court said in that case that after distributing to each class of traffic the property exclusively used by it, comparable use units might be found for distributing the property used in common.

The possible misuse of information collected was also urged as a reason for not developing the subject of railway cost accounting. It was urged that to give cost accounting information to the public would be the same as giving dangerous instruments to children. The systematic development of this subject and its free discussion in the light of all information available is the best safeguard against the misuse of cost figures. There is reason to believe that the failure of carriers to develop cost figures along permanent lines has been responsible for some of the events regarding which many of them have complained in the present

hearing. The action of certain state legislatures and commissions was alleged to have been unjust and unreasonable. Commissions and legislatures are not intentionally unfair, and if any of them have enforced unjust rates would not the kind of statistics here contemplated have convinced them that some other schedule would have been fairer? Would not this class of statistics command confidence which specially prepared figures can not always do? Comparisons of expense and performance have long been made by carriers in contested cases before the commission. These have nearly always rested upon transient data. Those of the future should be based upon permanent analyses and compilations.

The fact that circular No. 3 provides for a separation for only a part of the accounts was referred to. A distinction is to be noted between those expenses which can be distributed between freight and passenger service only from an analysis of pay roll and vouchers, and those which must be distributed on various statistical bases. For the greater part circular No. 3 deals with the former class of expenses. If these expenses were analyzed, it would be possible to complete the distribution for other accounts with the statistical bases which are in our possession. However, the information which is called for by circular No. 3 would be useful in ascertaining particular cost units among railways for different years and for the same railway from year to year. Nevertheless we believe that we should proceed to work out a complete formula for all expenses and require a separation of all expenses on prescribed bases.

The expense of making cost analyses was one of the chief arguments against the adoption of such a requirement. If followed out continuously in the closest detail, it may be that the expense would be prohibitive. That is not suggested here, and a division between freight and passenger service alone will not involve additional expense which can not be justified. The carriers were asked to submit estimates as to the expense of complying with circular No. 3. A request was made for a second estimate, based upon a modification of the circular along the lines suggested by the carriers. Copies of these replies were sent to the chairman of the Association of Railway Accounting Officers. In his opinion, compliance with the circular would mean an expense of \$8.78 per mile of road, or a total of \$2,057,478 for carriers having operating revenues in excess of \$100,000 per annum. This estimate is probably substantially correct if it is intended, as it appears to be, to cover a literal compliance with the circular as interpreted by him; but that is not what is here proposed.

The wide variation in the estimates is noteworthy. No satisfactory explanation has been advanced as to why it should cost the Lackawanna \$78.29 per mile, the Lehigh Valley \$18, the Southern \$14.25, and the Southern Pacific only \$3.17. If expense alone were to be the determining factor it would be necessary to have a new estimate after circular No. 3 has been revised in the light of the suggestions received.

Another argument in opposition was that after a simple and relatively inexpensive division between freight and passenger service had been instituted, more comprehensive and expensive requirements would be made in the future. Future requirements must rest upon their own merits and the future alone can decide whether additional requirements will justify the added expense. The carriers also contend that a division would have to be made between state and interstate traffic, because the commission has no jurisdiction over interstate traffic. This argument overlooks the fact that it is not claimed that circular No. 3 would be sufficient in all cases. If it should become necessary for the commission or a court to know the total expenses for interstate passenger traffic the work involved would be simplified very much if the division between freight and passenger service as a whole could be accepted at the start. Moreover, the commission has considered cost in many freight cases and has never found it necessary to separate the state from the interstate cost. Cost does not change because a state line is crossed. The length of the haul and the volume of the traffic are among the determining factors in arriving at cost.

In our opinion ample reason exists for requiring railway com-

panies to extend their analysis of operating expenses with respect to freight and passenger traffic beyond that which has hitherto been required in the annual reports. Circular No. 3 will be revised in the light of suggestions received, and a workable plan developed which will not be unduly burdensome to the carriers and which will yield statistical results of a fundamental character of value alike to carriers and the commission. Additional conferences will be held with the view of eliminating and minimizing as far as possible all objectionable features. It does not seem practicable to do this, effective July 1, 1914. If sufficient progress can be made in the perfection of the circular, carriers will be asked to file a special report for the year ending June 30, 1915, showing the separation between freight and passenger expenses. As early as practicable all carriers in class I will be required to separate operating expenses for each account as follows:

1. Expenses directly assigned to freight service.
2. Expenses directly assigned to passenger and allied services.
3. Expenses apportioned to freight service on prescribed bases.
4. Expenses apportioned to passenger and allied services on prescribed bases.

No operating expenses are to be left unapportioned. (30 I. C. C., 676.)

NEW HIGH RECORD TRAIN LOAD

By R. S. MOUNCE

The Erie's monster Triplex type locomotive, recently put in service for use as a pusher on Susquehanna Hill was given a hauling capacity test on the Susquehanna division July 23, in which all previous records for train loads, hauled by one locomotive, were broken and a new record established which bids fair to stand unequalled for some time to come.

The test was made from Binghamton, N. Y., to Susquehanna, Pa., a distance of about 23 miles. The train consisted of 250 fifty-ton steel gondolas, each loaded to capacity, and a dynamometer car, and weighed 17,912 tons, exclusive of the locomotive. Its total length was 8,547 ft., or 1.6 miles. The grade between the two stations is gradually ascending, the worst condition being a combination of .09 per cent. grade and 5 deg. curvature.

Pushers were used to assist in getting the train under way. They pushed the slack forward until the Triplex lead locomotive had all the cars moving, after which they were uncoupled and followed the train in case they should be needed again. This operation eliminated the danger of pulling out drawheads in starting, which otherwise would undoubtedly have occurred with a train of such length. Portable telephones were used to communicate from the head end to the rear of the train, and this made it possible for the pushers to do their work in unison with the lead engine in starting the train.

A portion of the dynamometer record, which shows the drawbar pull at its maximum, is reproduced on the opposite page. A summary of this record breaking haul is given below:

Number of cars in train.....	251
Total weight of train (excluding locomotive).....	17,912 tons
Total length of train.....	1.6 miles
Maximum speed attained.....	14 miles per hr.
Maximum drawbar pull	130,000 lb.
Minimum drawbar pull	67,000 lb.

RAILWAY CONSTRUCTION IN SOUTHWEST AFRICA.—It is reported that following long preliminary negotiations with the government, a syndicate has been formed to undertake the construction of railways in German Southwest Africa. The syndicate is said to include among others the Hamburg-American Line, the North German Lloyd Steamship Company, the Woermann Line and a number of banks. The construction company which the syndicate will form will have at the outset about \$12,000,000 capital, which will be used at once for construction purposes. The first line, it is planned, will extend from the coast through the territory of the Mossamedes Company to the province of Angola.

WILL GOVERNMENT REGULATION SUCCEED?*

BY SAMUEL O. DUNN

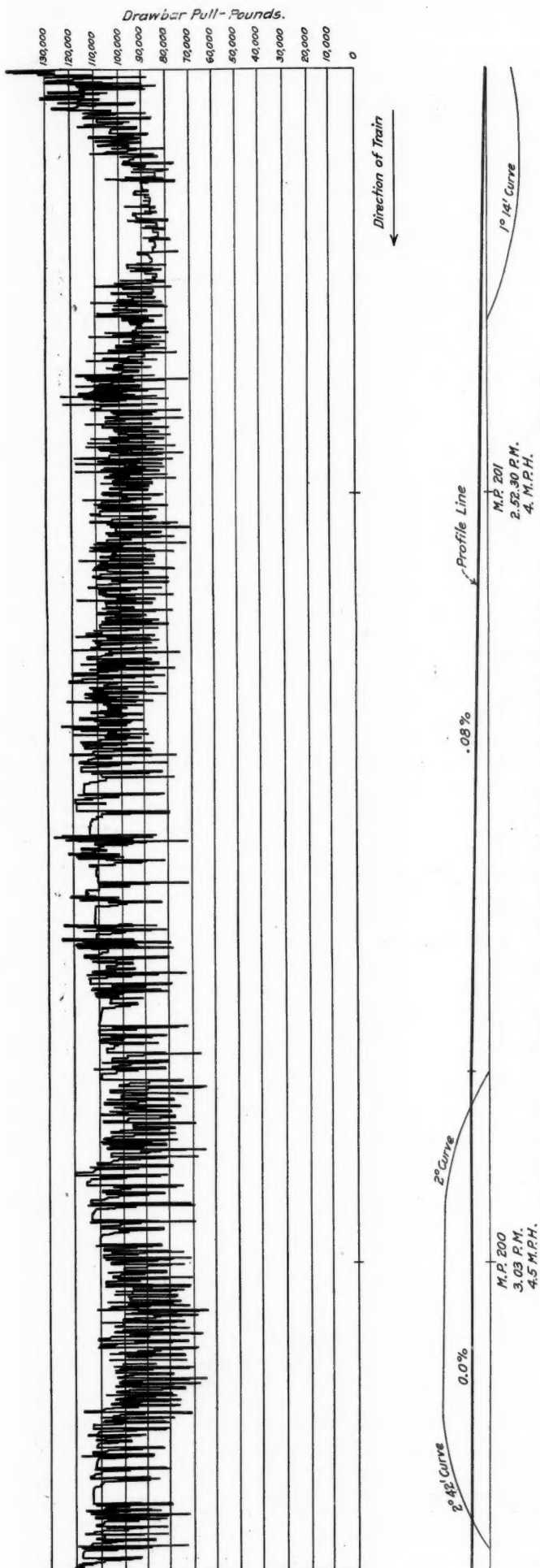
Whether government regulation of railways and other public service corporations will succeed is a question of foremost importance to the American people. If regulation is a failure the public will be presented with two alternatives. It may let these concerns be managed without regulation and control; or it may acquire and operate them itself.

Many have no doubt as to which of these alternatives would be preferable. They would unhesitatingly choose public ownership. Many would even prefer public ownership rather than private ownership subject to public regulation. I have given some years of study to government ownership; and I have become with respect to the politico-economic opinion now apparently dominant, a heretic. I do not accept the view that if we had to choose between unregulated private management and government ownership we ought to choose public ownership. Under the political conditions that exist in this country, if I had to choose between unregulated private management and government management I would choose unregulated private management. Five years ago I would have said the opposite. That was before I had really studied the subject. Unregulated private management has serious faults. It has developed numerous abuses in this and other countries. But government management is also unregulated management, for the government cannot regulate itself. And unregulated government management has greater faults than unregulated private management. Under unregulated, or practically unregulated, private management of railways we had rebating, stock watering and numerous other abuses. But along with those abuses we had the most enterprising and progressive railway management that ever existed. The unregulated private management developed railways faster, built them cheaper, paid higher wages, charged lower rates, and did more to promote commercial and industrial development than has been done by any other railway management, regulated or unregulated, private or public. It was the first railway management in the world to adopt the air brake. It was the first to adopt the automatic block signal. It was the first to adopt steel freight and passenger cars. It was the first to develop those systematic methods for increasing the average load hauled per car and per train which have done more to reduce the cost of railway transportation, and thereby to keep down the rates that must be charged for it, than all the other methods that have been developed since the railway was invented. As President Hadley of Yale has said, "With all the talent that has been put into the public administration of industry, it is a salient fact that the important inventions have been made in countries enjoying private enterprise. . . . In most cases it took government experts from twenty to twenty-five years to discover them after they had been in use on private (railway) lines." It is this initiative and enterprise which constitute the great merit of private management; and it is the lack of them which constitutes the great defect of public management. And this one demerit of public management is more than an offset to all the shortcomings and offenses of unregulated private management.

Private management means progress, although incidental to that progress there may be abuses. Nowhere has public management meant progress in the true sense. Public management is like the Japanese nation. It is often skillful at imitating improved methods or machinery that others have introduced, but it never creates them. And this is a shortcoming of public management which is ineradicable.

I know that the advocates of public ownership make remarkable claims regarding the results it has secured in other countries, and that it would secure here. But you will search the world in vain for evidence in support of these claims. They tell us that government management would be more economical

*An address before the Indianapolis Transportation Club, May 11, 1914.



than private management; but the evidence shows that under comparable conditions private management is almost invariably more economical than public management. They tell us that public management would provide more adequate facilities than private management; but the evidence shows that under comparable conditions private management usually has provided more adequate facilities than public management. They tell us that our railways would be safer under public management; but when you study the evidence you find that in almost every country where there are both state and private railways the private railways are as safe as, or safer than, the state railways. They tell us that under government ownership railway rates in this country would be lower, in spite of the fact that the evidence shows that, all conditions considered, the rates here are the lowest in the world. They tell us that under government ownership the public would derive a profit from the railways, in spite of the fact that a great majority of state railways do not earn their operating expenses and interest, and, therefore, have a deficit which must be paid from public taxation.

But while to some of us it may seem clear that private ownership, even without regulation, would be preferable to government ownership, the fact must be recognized that it is very doubtful if the public could be convinced of this. The public believes that the only alternatives are either successful public regulation or public ownership. And if regulation fails public ownership very probably will soon follow. Therefore, all who believe in the advantages of private ownership and management should be anxious to see a policy of regulation worked out and adopted which will succeed.

The first essentials of such a policy are that its purpose and scope be clearly defined, and that it be kept to that purpose and within that scope.

The proper purpose of government regulation is the promotion and protection of those interests of the public that are affected by the concerns regulated. And how may this be best accomplished? The fact that a policy of regulation is adopted implies a conviction that the government cannot best promote and protect the interests of the public by undertaking the management of railways and other similar concerns itself. It may be assumed that if the public believed that government management would be preferable it would adopt that policy. By adopting public regulation the public shows that it wants the duties and responsibilities of management left with the owners and officers of these concerns, and intends that the regulating authorities shall interfere with and control their acts and policies only when they require control for the protection of the public. The function of those who regulate is not an executive function. It is a corrective one. It is not ordinarily their place to tell the managements what they must do any more than it is ordinarily the place of a police department to tell citizens what they must do. It is ordinarily their function to tell the managements what things they must not do, and keep them from doing those things, as it is the duty of a police department to tell citizens what they must not do and keep them from doing those things. Because policemen are required to prevent burglaries and apprehend those who commit them is no reason why the police departments should be authorized to control and direct every action of every citizen in every detail of his life. Likewise, because it is necessary to have laws and commissions to control those public service concerns and their officers who may be disposed to act dishonestly or unfairly, it does not follow that all public service concerns and all their officers should be presumed to be malefactors and extortionists and should have their every business act subjected to scrutiny and direction by public authorities.

The purpose of public regulation is, or ought to be, to conserve all the benefits of private enterprise and management while curbing the excesses and abuses to which they give rise when unregulated. To attempt to control and direct in detail the acts and policies of public service concerns while leaving

them in private hands would be to sacrifice all of the advantages of private ownership and management, and secure none of the advantages of public ownership and management.

The purpose of public regulation should be, then, not managerial or executive, but corrective. Over what parts of the business of a public service concern should this corrective authority extend? It should extend, it would seem, wherever experience shows that abuses will develop which work a detriment to the public. Experience has shown that railways may discriminate unfairly in their rates. Therefore, the regulating body should have authority to correct unfair railway discriminations. Experience has shown that railways and public utilities may charge exorbitant rates. Therefore, the regulating body should have authority to reduce rates that are unreasonable. Experience has shown that private managements, in the absence of competition, or where there is combination, may give poor service. Therefore, the regulating body should have power to correct defects of service. Experience has shown that such concerns may so keep their accounts as to deceive investors. Therefore, the regulating body should have authority to make them keep proper accounts and make proper reports. There is no necessary conflict between the principle that regulation should be given a wide scope, and the principle that it should not seek to arrogate to itself the functions of management. The regulating body which has a proper conception of its functions, and a reasonable capacity for self-restraint, will have no difficulty in correcting unfair discriminations in rates and shortcomings in service without trying to supersede the traffic manager in initiating rates and the general manager in directing operations.

Experience has shown that if regulation is to be at once tolerably intelligent and tolerably effective it must be taken out of the hands of both legislatures and courts and intrusted to administrative commissions. We have developed regulation by commission to a greater extent than the people of any other country, and some foreign observers whose opinions merit respect have expressed optimism regarding our experiment in this direction. "There can be little doubt," says Sidney Brooks, one of the leading publicists of England, "that it is in the utilization of such commissions to stand between the local authorities on the one hand and the corporations on the other that the United States is destined to lead the world and make the most valuable of all contributions to the problem of combining private initiative and enterprise with protection of public rights." Another Englishman who is a very keen student of public affairs and economic matters in this country is W. M. Acworth; and recently when Mr. Acworth appeared before the British Royal Commission on Railways he described the authority and work of the Interstate Commerce Commission, and advocated the creation of a body with somewhat similar powers in England.

As we have adopted a policy of regulation which in outward seeming approximates the policy which it would appear is adapted to our needs, it might be thought that there could be no reason for serious doubt as to its success. And yet there is much ground for very serious doubt as to whether it will succeed. Why is this? Whose fault is it? What needs to be done to insure the success of regulation?

That the permanent success of regulation is so doubtful is due to the attitude and conduct of the corporations and their representatives, on the one hand, and the attitude and conduct of the public and its representatives, on the other hand.

When the policy of public regulation first began to be adopted most officers of public service corporations resented and resisted it as a meddlesome interference with their work and an encroachment on the property rights of investors. As time passed this general opposition to regulation merely as such declined, and it has finally disappeared. But there are managements of public service corporations here and there which, although some of them are honest and efficient, still regard public regulation in the same old way, and seize every opportunity to flout and defy the regulating authorities and the public

which they represent. A short time ago a newspaper despatch described how a vice-president of a large railway system—which, by the way, is notably well managed—had literally booted out of his office a representative of the Interstate Commerce Commission. Now, nothing could be sillier from the standpoint of the railways themselves than such conduct on the part of a railway officer. Its necessary tendency is to incense the regulating authorities and the public against the railways, and, thereby, to promote drastic and harmful regulation. Again, some railway managements continue to do things which are unwise and dishonorable, if not downright dishonest, and the disclosure of which tends to blacken the reputations of all railway managers and managements. For example, right in the midst of the splendid fight which railway officers have been making for less drastic regulation of their rates and earnings were disclosed the facts regarding the financial legerdemain which contributed so largely to throw the St. Louis & San Francisco into bankruptcy and to compel the New York, New Haven & Hartford to suspend its dividend. These disclosures have done more harm to the cause of fair and salutary regulation for railways than the malevolent and exaggerated attacks of many muckrakers and many demagogues. It is regrettable, but it is true, that one imbecile or dishonest railway manager can do more to turn government regulation in the wrong direction than ten capable and honest railway managers can do to turn it in the right direction.

While the success of regulation is menaced by the tactless, unwise, or unscrupulous conduct of a minority of corporation managers, it is menaced even more by the spirit which animates a large part of the public and which to an even greater degree animates most of the public authorities that are directly concerned with regulation. The public began to adopt laws and create tribunals for regulation in a prejudiced, revengeful spirit. This is not surprising, in view of some of the abuses which had prevailed and which it was the purpose of regulation to correct. It is not very surprising that this prejudiced, revengeful spirit has continued to be shown in view of some of the disclosures regarding corporation management which have continued to be made up to the present time. Nevertheless, that spirit has come to be, as respects the managements of most railways at least, entirely unjustified, and it is now, because of the effects which it is producing, very much the greatest obstacle to the success of public regulation.

One of its effects is the continuance of the adoption of legislation to regulate features of corporation management which either ought not to be regulated at all or ought to be left to be dealt with by the public service commissions. For example, there are the full crew laws which the labor lobby has succeeded in getting ignorant or vote-seeking lawmakers to burden the railways with. You have one of them in Indiana. As means of promoting safety they are worse than worthless. They increase expenses, and they tend rather to increase than reduce the danger of accidents. Why are such laws passed? Sometimes it seems that the public must think that any legislation which will injure the railways is bound to benefit the public. You may say that the public is not responsible for such legislation and does not want it. But in every democratic community or country the people get the kind of legislation and government they really want and deserve. It is mere cant to say they do not. If a democratic government is corrupt, it reflects a corrupt people; if it is vicious, it reflects a vicious people; if it is foolish it reflects a foolish people.

Another menace to the success of regulation is the subjection of railways and other large concerns, such as telephone and telegraph companies, to the requirements of all of the states and of the federal government, besides. This might be tolerable if the various regulating authorities would show a disposition to unify and harmonize their regulations and to be reasonable and just. But, unfortunately, the requirements made by them are extremely diverse and often conflicting. And as to most of the states, it is impossible to say whether their laws, or the

men they put on commissions to enforce them, are the more ignorant and unjust.

A spectacle which has been presented at the recent hearings before the Interstate Commerce Commission in the matter of advances in freight rates in eastern territory illustrates the kind of regulation and the kind of regulating officials we have in many states. The state commissions, like the Interstate Commission, are charged with enforcing the regulatory statutes. They are, besides, charged with the regulation of rates. It is tacitly assumed that in passing on the reasonableness of rates they will act as impartial arbiters between the concerns that charge them and those who pay them. Nevertheless, some time ago representatives of the commissions of eight states, all of them west of the Mississippi river, met at Kansas City, adopted resolutions declaring that no advances in rates were justified and designated the chairman of one of these commissions to appear for them before the Interstate Commerce Commission and oppose any advances. These wise and impartial commissioners, without having heard a single word of testimony or argument on either side, settled the entire question to their own satisfaction, and then proceeded to constitute themselves parties to the case. Their representative went to Washington and appeared there, as the record shows, not only for the state commissions which paid his expenses with the money of the taxpayers of their states, but also for two large shippers' organizations, the American National Live Stock Association and the Grain Dealers' Association.

Now, what must we think of the spirit that animates the railroad commissions of those eight states? What must railway men think of their chances of getting a square deal from them? What must investors think of the chance of fair treatment that capital invested in railways has in those states? Manifestly, those state commissions are packed against the railways. Their members have no sense of fairness and only a rudimentary sense of decency. A railway stands as much show of getting a square deal from them as a heretic stood of getting a square deal from the Spanish inquisition under Torquemada, or as a negro accused of rape does from a southern mob. Railway regulation is in the same condition in those states as the administration of the criminal law was in Kansas and Colorado in past years when every distinguished citizen of Dodge City or Cripple Creek had his own private burying ground; and it is not without its significance that in the one western state where railway regulation has been the most drastic the chairman of the commission is an ex-cowpuncher who was once tried for murder, and one of the leading candidates for governor is a former member of the Dalton gang of bandits. This state, I might add, is one of the eight whose commissions sent Mr. Thorne to Washington. Do you say that the action of these eight commissions did not reflect the public opinion of their states? It can hardly be without significance that in every one of them the members of the commissions are elected by the vote of the people.

Perhaps the most serious menace of all to the success of government regulation is the acceptance by many regulating authorities and a large part of the public of the principle that public service corporations should be limited to what is called a "fair return" upon the fair value of their properties. To this principle it is now being attempted to add the principle that there should not be included in valuation any allowances for increment in value or for value created by the investment of earnings. It is commonly assumed that the Supreme Court of the United States has held that all that a public service corporation is entitled to is a "fair return." The court never has laid down any such principle. What it has held is that a concern rendering a public service may not be restricted to less than a "fair return." Furthermore, it has held that such concerns are entitled to benefit by the increase in the value of their properties. But the public assumes, and perhaps correctly, that the court meant that the public may restrict a public service corporation to barely what might be construed to be a fair re-

turn, and a large part of the public has assumed, further, that this minimum which the courts have fixed may properly be taken by the regulating authorities as a maximum.

Now, there are two questions to be considered here. One is, how small a return a public service corporation may be restricted to without confiscation of its property? That is a legal question. The other is, what return ought a public service corporation to be allowed to earn in justice to investors and for the best interests of the public? That is a question of equity and public expediency. Now, it is the question of expediency, not the question of law, with which the public is most vitally concerned, and it is very unfortunate that it has got the two questions confused in its mind. It seems not improbable that it would be better both for the owners of railways and public utilities and for the public if the constitutional rule that public service corporations cannot be denied a fair return had never been established. Then the question of public policy could be presented to the public without being mixed up and confused with a question of constitutional law. This is the situation in our neighbor Canada, as it is in France; and in both of these countries the profits well managed railways are allowed to earn, and which they are actually guaranteed by the public, are substantially larger in proportion than the public and regulating authorities in this country are disposed to allow to be earned. In our attempts to apply the legal formula of a fair return to the solution of a problem that is purely one of public policy and public expediency we are hindering, and threatening to arrest, the improvement and the increase of our transportation facilities.

Now, these are some of the obstacles to the success of government regulation. Will they be overcome? Will the attitude and conduct of public service corporations and their representatives, on the one side, and of the public and its representatives, on the other side, change enough to enable us to improve our system of regulation until it shall accomplish what such a system ought to accomplish, without hindering and hampering the managements of the concerns regulated in doing the things which it is their proper function and their right to do? There is no great reason for pessimism on that score. The attitude and conduct of the owners and managers of public service corporations have improved remarkably within recent years. The number of them who now oppose fair and reasonable regulation is relatively small. On the other hand, there has been, especially within the past year, a remarkable change in public opinion with reference to public service corporations, and especially railways. The talk of business men in their offices and at their clubs, and of people generally on street cars and in trains, as well as the comment of the press, shows that the public is convinced that the policy of railway regulation has been growing too drastic, restrictive and burdensome to be either fair to the concerns regulated or beneficial to the interests of the public.

But while there is ground for optimism it would be easy to be too optimistic. Regulation in most of the states is still an utter failure, because it is ignorant, unpractical, demagogic, and even grossly and viciously unjust. It is much better in the nation, but far from entirely satisfactory. We are not out of the woods. It will take years of educational work and effort to remove the numerous formidable obstacles to the success of regulation. The railway financier who holds up his fellow stockholders and the public, the big shipper who practices piracy on both the railway and the little shipper, the railway official who does not know how to get on with the public, the railway official who grafts, the demagogue who furthers his political ambitions by hurling unjust incentives and cooked-up statistics at the railways, the railway commissioner who discloses his own character and prostitutes his office by constantly appearing as the persecuting attorney instead of acting as a just judge, and the numerous people of socialistic temperament and ideas who cannot conceive of any good coming out of a large corporation—these we shall always have with us to oppose all efforts and to defeat many efforts to put and keep regulation on a fair and

sound basis. Perhaps we shall overcome them. Perhaps we shall not. If I were a candidate for office or ever intended to become one, I should tell you that all that is necessary to get this great question settled right, is to refer it to the good sense and discriminating judgment of the American people. As I am not a candidate for office and never expect to be, I feel very strongly that it will be necessary to strive strenuously for many years in order to educate the public mind and the public conscience up to the place where they will be disposed and able to solve the problem fairly and intelligently.

THE RAILWAYS OF RUSSIA

M. Edmond Théry, director of the *European Economist*, recently published an elaborate analysis of the Russian Railway system. According to M. Théry, Russia is the most poorly equipped with railway facilities of any of the leading nations of Europe. In fact it has only about one mile of line for each 100 square miles of territory, a condition that acts as a severe handicap on Russian development, and it is vital to such development that the railway mileage should be increased. Such an increase is needed for its agricultural and mineral development, as well as for a rapid military mobilization. The following is a condensed abstract of M. Théry's article:

The first railway to be built in Russia was that running from St. Petersburg to Tzarskoie Selo, a distance of about 16.5 miles, and was intended exclusively for passenger traffic. In 1842, when there were more than 3,600 miles of railway in Europe the Emperor Nicholas ordered the construction of the St. Petersburg-Moscow line, about 400 miles long. This was at the expense of the crown. Work was begun in 1843, but the road was not opened for traffic until November 1, 1851. In 1868 the line was conceded to the Grand Railway Company of Russia, but was re-acquired by the state in 1868 with the balance of the company's system. There has followed a series of changing policies in the matter of railway construction. Up to the time of the Crimean war, all lines were built and operated by the state; but from 1857 to 1881, very few lines were built by it, recourse being had to private companies, the interest on whose securities was guaranteed. Then from 1881 to 1891 no more concessions were granted to private companies, but nearly all the new lines were not only built by the state, but it bought about 4,275 miles of road belonging to the companies. Since 1891, though the state built some lines, its energies were almost entirely absorbed in its Asiatic work, so that it reverted to an encouragement of the activities of the companies. The result has been a multiplication of companies and comparatively little railroad building by the state.

After the two great arteries of communication from St. Petersburg to Moscow, and from Varsovia to Vienna had been opened, the first to be built was that from St. Petersburg to Varsovia in 1851. It was started by the state, but the work was interrupted by the Crimean war, and was finished by a French company, the Grand Russian Railway Company, which also built the Nijni-Novgorod line, about 1,050 miles, in 1857. This was the first large concession granted to a private company. Then, for a number of years, the government granted numerous concessions, besides giving financial assistance so that between 1867 and 1879 about 10,800 miles were opened, or an average of 900 miles a year, as compared with an average of 192 miles for the corresponding period from 1855 to 1867. In 1881 the construction of the Krivoi-Roy (Catherine Railway) 310 miles, was undertaken by the state and this inaugurated a period of railway construction and operation by the state. Between 1881 and 1891, the state authorized the construction of a few lines by companies already in existence, but no new companies were incorporated. On the other hand, the state bought 15 lines from the companies, with a mileage of about 4,275. It was during this period that a unification of the tariffs was undertaken. From 1891 to 1901 the state continued its policy of purchase. It took

over about 10,100 miles of road from the private companies, including the Grand Company in 1894 and the Southwestern Railway in 1895. The total of the lines acquired by the state between 1881 and 1901 included 35 companies and 14,400 miles of road. During this same period the state built a number of new lines, both in Europe and Asia, and the ukase of the Czar Alexander III authorizing the construction of the Trans-Siberian Railway bears the date of March 17, 1891. The dates of the opening of the great Asiatic lines are as follows: Oussouri Railway, 1897; Siberian Railway to Irkoutsk, 1899; Irkoutsk to the Manchurian frontier, 1901; Trans-Caspian of the Central of Asia, 1899; Tachkent Railway from Orenborg to Tachkent, 1906. The total length of these Asiatic lines with their branches was about 6,775 miles.

While the government was engaged in this new construction, it granted a number of concessions to private enterprises and even gave up a number of its own lines to the same, so as to form homogeneous systems from an operating standpoint. In this way the following companies were organized between 1891 and 1895, and they still exist.

1. Moscow-Kazan Railway, incorporated in 1863 with 168 miles, and owning 1,610 miles in 1891.
2. Moscow-Kiew-Veronege Railway, incorporated in 1866; owning 294 miles in 1891 and 1,625 miles at the present time.
3. Vladicaucasus Railway, incorporated in 1872 with 600 miles, and has, today, about 1,560 miles and more than 400 miles of recent concessions.
4. Riazan-Ouralsk Railway, incorporated in 1865 with 460 miles, now operating a system of 2,700 miles.
5. The Southeastern Railway, incorporated in 1893, and now operating 2,140 miles.
6. Moscow-Windau-Rybinsk Railway, which from 1869 to 1895 operated but 185 miles, now controls over 1,600 miles of line.

Up to very recent years these six companies, together with the Varsovia & Vienna Railway, which was bought by the state on January 1, 1912 (the only purchase since 1902), operated about 97 per cent. of all the Russian railways that were controlled by private companies. The state controlled 69.6 per cent. of all the railways of the country in 1900, a proportion that has been maintained up to the present. On January 1, 1913, the situation was as follows:

State railways in Europe.....	22,250	53.8
State railways of Asia.....	6,775	16.3
Total	29,025	70.1
Private lines	12,409	29.9
Total	41,434	100.00

In addition to this construction was begun in 1912 on 3,850 miles, of which 2,640 miles were for the state and 1,210 miles for private lines. Beyond this, 37 new projects, representing about 2,980 miles, were submitted in 1912, all of which were favorably reported by the commission of new railways. Finally the commission has laid out a program of construction, extending through five years, of at least 18,000 miles.

Besides these main lines, there are a number of purely local lines, the mileage of which has grown from 1,175 miles in 1902 to 1,400 miles in 1912.

The following figures give the cost per mile of line for both the state and the private lines:

Year	State		Private	
	Mileage	Cost per mile	Mileage	Cost per mile
1898.....	18,040	\$54,075	9,237	\$53,560
1899.....	20,117	\$50,830	10,455	\$50,367
1900.....	22,317	\$51,500	†	†
1901.....	23,601	\$52,170	10,800	48,000
1907.....	27,634	\$57,330	11,735	\$50,212
1908*.....	28,032	\$57,268	11,804	51,088

* Last official report available. † Report incomplete.

From these figures it appears that the cost of the state roads was more than of the private, but it must be taken into consideration that the proportion of double track was more on the

state roads, being 28 per cent. of the whole, whereas on the private lines it was but 13 per cent.

The number of passengers carried rose from 15,500,000 in 1897 to 54,400,000 in 1911. The average number of passenger miles per year from 1897 to 1901 was 1,661,880,000, while from 1907 to 1911 it was 3,178,560,000. If these figures are taken on the basis of mileage operated, they would show an increase of 44 per cent. in density. In freight traffic the annual ton mileage rose from 5,402,964,600 in the period from 1897 to 1901, to 9,651,751,560 in the period from 1907 to 1911. Taken on the basis of mile of line operated the density of traffic rose from 415,800 to 558,360 ton-miles, an increase of 34 per cent.

The cost of operation was only 58 per cent. of the gross receipts in 1897, but it rose steadily up to 66 per cent. in 1901. During the Russo-Japanese war and the internal political trouble that followed, the falling off of traffic produced a marked increase in the ratio, which rose to 73 per cent. in 1907, and since that time, because of the rapid increase of traffic, has fallen to 56 per cent.

On the European lines operated by the state the passenger traffic increased 53 per cent. and the freight 25 per cent. from 1897 to 1911.

The disappointing part of the state operation is that while the gross receipts of the private companies increased 41 per cent., and their operating expenses only 40 per cent., the gross receipts of the state lines increased 22 per cent., and their operating expenses 35 per cent.

Railway operation, in Russia by the state, then, was much more expensive during the 1907-1911 period than it was by the private companies. In fact the ratio of expense to gross receipts on the European system of the state ran from 62 to 69 per cent., while with the private companies it remained stationary at 62 per cent. During the past four years the state management has succeeded in gradually lowering this percentage to 57.6, while the private companies have reduced theirs to 55 per cent.

The principal Asiatic lines were opened and put into operation in 1902. The period of partial operation from 1897 to 1901 was one of loss, so that it is only from 1907 to 1911 that the system can be considered as complete and homogeneous. But, the earlier years of this period were seriously affected by the liquidations of the Russo-Japanese war, so that it was not until 1910 and 1911 that there was any appreciable profit. In 1908 the operating ratio was 108 per cent., and this was reduced to 83 per cent. in 1911, due to an increase of receipts and decrease of expenses. Russia has great faith in the future of the Asiatic system, which is expected to develop the immense territory in which it is located and whose fertility is very great. In 1913 the Trans-Siberian lines had a mileage of 4,165 miles and the Trans-Caspian lines of 6,800 miles.

From the lines comprised in the above mileage, numerous branches have been planned and authorized, which will run into the southern part of Siberia and to the center of Turkestan. It is thought in St. Petersburg that, within the next seven or eight years, the Asiatic system will consist of from 10,000 to 10,500 miles, and that the receipts will quite suffice to pay all fixed charges on the capital invested.

Because of the interest guaranteed on private lines under different forms and at different times, as well as the payment of interest and amortization of capital on the state railways, the Russian treasury has been called upon to make contributions of very considerable amounts, so that starting in 1898 it was not until 1910 that the receipts exceeded the expenditures.

The report of the minister of finance to the Douma in 1913 shows for the years 1908, 1909, 1910 and 1911 the net annual receipts of the state railroads rose from \$67,936,000 to \$155,751,000. But the question at once arises as to whether these net receipts, large as they are, are sufficient to meet fixed charges. In this case the capital has been obtained from two sources:

1. The sale of bonds in the home or foreign markets.
2. The issuance of government bonds.

For the past 20 years these bonds have been cared for by the

annual budget, but they must be regarded in the same way as though the funds had been borrowed from the public. The interest and amortization of the capital so obtained form a state obligation and are part of the public debt. In the case of the government bonds, the comptroller of the Empire debits the state system each year with a theoretical $4\frac{1}{2}$ per cent. on the total capital employed.

Thus at the end of 1911, the capital represented by the Russian State Railway System amounted to \$2,612,595,000 divided into A, \$1,379,178,000 and B, \$1,233,417,000 of treasury obligations. To meet the interest and amortization of capital A, an annuity of \$56,444,000 was put upon the budget of 1908, or 4.09 per cent. of the capital in circulation. The theoretical annuity upon capital B calculated at $4\frac{1}{2}$ per cent., requires, in round numbers \$55,500,000.

The difference between the net receipts of operation, \$155,787,500, and the annuity, \$56,444,000, or \$99,343,500, represents the real net receipts of the state. But if the state had also been obliged to pay, as a private company would have been obliged, the $4\frac{1}{2}$ per cent. for interest and amortization on the capital which the treasury had furnished gratuitously, amounting to \$55,500,000, its profits would have been reduced to \$43,843,500.

In 1913 passenger rates were raised, and these rates are the same on the state and the private railways. They are based on a differential sliding scale, and the present rates for first-class passengers are as follows: 2.9 cents per mile for the first zone of 100 versts (66 miles); 2.7 cents per mile for a zone of 200 versts (132 miles); and 2.5 cents per mile for a zone of 300 versts (198 miles).

On express trains an extra charge of about 10 per cent. is made, and if the passenger wishes to reserve a chair in a first or second-class compartment, a reservation ticket is obtained at a cost of from 40 to 75 cents. To occupy exclusively a two-passenger compartment for the night, the first class passenger will be required to pay about \$3 instead of 76 cents, to which must also be added one rouble (51.5 cents) for bed clothes and a pillow. Passengers have the right of free transportation for 36 lb. of baggage.

On both the state and the private railways, the monthly wages of locomotive engineers range from \$67 to \$82.50; those of firemen from \$56.50 to \$67, plus certain premiums paid for economy of fuel and oil and for good service. The pay of trainmen runs from 76 cents to \$1.30 a day; that of track laborers is quite variable, running from 57 to 62 cents a day in the provinces to about 76 cents a day in the large cities. The railway employees are granted a pension on retirement proportioned to the number of years of service and the salary received during the last year. They also have the right to a day of rest each week.

In Russia there are no associations of engineers or other railway employees, as such associations are expressly prohibited by law. Hence, with the exception of the strike of 1905, which was really a political demonstration, there has never been a strike or an attempt at a strike on the Russian railways.

Russian locomotives burn wood, coal or oil, according to the region in which they operate. On the Baltic and Northern lines they burn wood. This is also the case on the great Nicholas line running from St. Petersburg to Moscow. Along the Douetz and upon the roads running from Moscow to Varsovia and the German frontier by way of Smolensk and Brest, and on the lines into Little Russia, Kiev and Odessa, they burn coal from the Douetz or Dornbrova. But on lines within easy transportation distance of the Volga, oil is used.

The economic development of Russia has been more rapid than the increase in its production of fuels, so that, for the past ten years, the prices of wood, coal and oil have steadily increased, thus handicapping industries and putting a burden on the inhabitants of cities, where the cost of heating has almost doubled. In consideration of the effect of this condition on manufacturing and the railways, the minister of commerce and industries has just submitted to the vote of the Douma a propo-

sition to cancel the duty for one year on the importation of foreign coal, intended for public service of the railways. Now the duty, which is only 47 cents per gross ton at St. Petersburg and the Baltic ports, rises to \$2.03 per ton in the Black Sea ports and the Sea of Azov, where foreign coals could readily compete with those of the Douetz.

During the past few years, railway operation in Russia has made great progress both on the state and private lines. It is still a subject of discussion as to whether it is better for the state to reserve to itself the sole right of railway construction and operation, or grant the rights to private capital under certain reserves of guaranteed interest and state control. Under certain circumstances the state monopoly idea has prevailed, under the pretext that it tends to a more impartial service of the national interests. Those who favor private companies contend that their management is less arbitrary and less expensive to the public in the end than that of the state. Finally they have come back to the state system since the question of national defense has become so important, because it is thought that the problems of strategic railway construction best adapted to the rapid mobilization of troops can most properly be solved by the state.

Count Witte, the former prime minister, with whom railway matters were of the first importance, said, in an address in 1910, that after many years of deficit, the Russian railways had at last returned an income to the treasury in the period from 1895 to 1900, but that this had been again followed by a period of deficits because of the considerable mileage of strategic railways that had been constructed. "In countries," he said, "where political or military purposes control the location of railways, and Russia stands in the front rank of such countries, it is quite the custom to build strategic lines, knowing full well that such roads will not be on a paying basis for a number of years. Between 1889 and 1904, 17,435 miles of railway were authorized and construction thereon begun. Out of this I put 4,030 miles as being incontestably strategic, or 23.1 per cent. and 14.5 per cent. as being purely political, such as the Astrakan Railway. It is quite evident that if these roads had not been built, and if they had not been operated, the general deficit of our railways would have been considerably diminished."

Count Witte's ideas were evidently shared by his successor, M. Stolypine, and they certainly are by M. Kokovtsoff, the actual head of the government, and by the Czar himself. In fact, since 1910, and especially since the accession of M. Kokovtsoff to power in 1911, a fresh impulse has been given to railway construction, for more than 4,600 miles have actually been started or authorized.

LOUD SPEAKING TELEPHONES ON THE LACKAWANNA

The Delaware, Lackawanna & Western, which has attracted no small amount of attention in the past few months because of its successful experiments with the wireless telegraph for communicating with moving trains, has also been carrying on some equally successful work with "loud speaking" telephones for train despatching. No one disputes that the telephone is far superior to the telegraph for transmitting and repeating train orders; but the telephone has its disadvantages. Wearing a telephone constantly on the head is not the pleasantest thing in the world, especially when there is an electrical storm at some point on the line. L. B. Foley, superintendent of telegraph of the Lackawanna, has experimented with several loud speaking devices, but the one now in use, made by the Stentor Electric Manufacturing Company, of New York City, formerly the Electrical Experiment Company, is the first that has proved a success. Loud speaking instruments have been installed on two train despatchers' lines, including all the Lackawanna lines in New Jersey. The two despatchers are stationed at Hoboken.

The device is quite simple. The transmitter is much like the

ordinary transmitter, but is much more efficient. The receiver in like manner is very sensitive and in addition is furnished with a horn similar to that used on a phonograph. It is placed on the despatcher's desk in the position shown in the illustration, or may be on the wall. There is nothing in the nature of an amplifying device. The telephones are simply intended to reproduce at the receiving end the normal conversational tone of voice at the same volume used by the speaker at the transmitting end. The transmitter requires from six to eight volts in the primary circuit and operates on a current of from 0.2 to 0.3 amperes. It is necessary that the loud speaking transmitters be used in all stations on the circuit on which a loud speaking receiver is installed, but no other change in the standard equipment is necessary. The cost of the instruments is small, there being no amplifying devices. A station, provided with both the loud speaking transmitter and the loud receiver, can be equipped at a cost of \$50 exclusive of the batteries. In stations where the use of the loud speaking receiver is not necessary, the loud speaking transmitter alone can be put in for \$25. The battery cost per station per year is about \$1.80. The Lackawanna uses dry cells which have to be renewed twice a year.

With complete installations at all stations a circuit can be



Despatcher's Desk Showing Loud Speaking Telephone Receiver

worked without the use of selectors for calling. Without the calling bell the despatcher, to call a station, merely speaks the station's name into his transmitter in an ordinary tone of voice. The name is heard in all the loud speaking receivers on the line and for a distance of at least 15 feet from any one of them. The operator who is called can respond at once. An operator can call the despatcher in like manner.

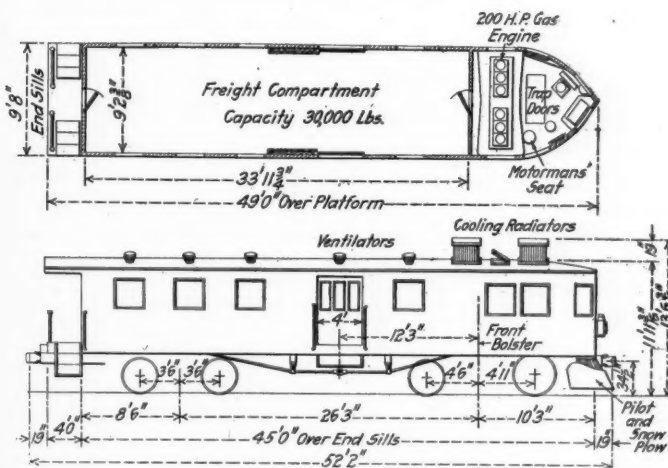
The operator at a station equipped with the loud receiver can keep track of all that is going on, the same as with the Morse telegraph. As is well known, one of the chief objections to the use of telephones on the train wire has been the isolation of each office from all others except when the operator could take time to put the receiver to his ear. With the Stentor apparatus the operators have less occasion to call on the despatcher for information as to the position of trains. The added opportunity for supervision on the part of the despatcher himself is also worth mentioning. The Lackawanna despatchers are glad to get rid of the head telephones. Disturbances on the line sometimes cause a continual buzzing which is most annoying to the person using the head receiver. In regions where electric storms

are common there is the additional chance of receiving violent sounds in the receiver, and the shock sometimes is dangerous as well as inconvenient.

SELF-PROPELLED CONVERTIBLE FREIGHT AND PASSENGER CAR

The Minneapolis & Northern Gasoline Motor Railway has recently purchased a gasoline motor freight car from the McKeen Motor Car Company, which is being used for freight and express service between Minneapolis, Minn., and Anoka. It is a semi-convertible car which, during periods of heavy passenger traffic, can be used for transportation of passengers, removable seats and chairs being installed for that purpose. It is equipped with the McKeen Motor Car Company type "A" motor truck in which have been incorporated many of the important features of the latest model type "C" motor truck. The air brake system has a special Gregory motorman's valve for operation of straight air on the motor car and automatic air on the trailers.

The length of the car over end sills is 45 ft., while the total length is 52 ft. 2 in. The floor plan and side elevation illustrate the general design of the car. It will be noted that the front end is wedge shaped and that the car is entered from a platform at the rear end. The McKeen depressed center side entrance is not a feature of the car, because its use is chiefly for freight and



Convertible McKeen Car for the Minneapolis & Northern Gasoline Motor Railway

express service. The car structure consists of a metal under-frame, and continuous 2-in. grooved steel combination side posts and carlines extending from side sill to side sill, with metal diagonal bracing. The outside and inside wall sheathing is of 13/16 in. fir. The floor is of 1 5/8 in. fir. The principal dimensions are:

Length over end sills.....	45 ft. 0 in.
Length over platform	49 ft. 0 in.
Length over-all	52 ft. 8 in.
Width over side sills.....	9 ft. 8 in.
Width over sheathing	9 ft. 9 3/4 in.
Width over-all	10 ft. 4 1/2 in.
Width inside	9 ft. 2 3/4 in.
Length of freight compartment.....	33 ft. 11 3/4 in.
Height, rail to roof.....	11 ft. 11 3/16 in.
Weight	56,000 lb.

SUBWAY EXTENSIONS IN BUENOS AIRES.—A Buenos Aires municipal decree has been issued authorizing the Anglo-Argentine Tramways Company to construct a tunnel section underneath Plaza Constitucion. The object is to enable the company to test its machinery and ascertain the most suitable procedure to be adopted in the excavation of the subway between Plaza Constitucion and Plazo Retiro. Due to the narrowness of some of the streets under which the route is projected, the subway will be constructed entirely by tunneling.

General News Department

A press despatch from Boston says that the vacation of Chairman Howard Elliott, chairman of the New York, New Haven & Hartford, is to be indefinitely extended, on account of impaired health.

A new ferry boat for the New York Central & Hudson River Railroad has been launched at the Harlan & Hollingsworth shipyard, Wilmington, Del. The boat is named *Weehawken*, and is for service in New York harbor. It is 210 ft. long and 66 ft. wide.

In an attempted train robbery on the Louisville & Nashville, three miles east of New Orleans on the night of July 24, the flagman of the train was shot and killed. The robbers, two of them, boarded the train at New Orleans. They got a small amount of money, and after the shooting, escaped.

Successful experiments with wireless telephone apparatus were made on the Pacific Limited Express of the San Pedro, Los Angeles & Salt Lake road July 17. Conversations were held between a car of the moving train and an office at the station at Los Angeles over distances from five to fifteen miles.

A press despatch from Fairbanks, Alaska, says that the government engineers are making rapid progress on the preliminary surveys for the railway between Fairbanks and the coast. The parties working on both sides of the Tanana river have completed their surveys between Fairbanks and Nonana, a distance of 55 miles.

Representative Park has introduced in Congress a bill to make copies of railroad tariffs admissible as primary evidence in courts. A copy offered as evidence must be accompanied by satisfactory proof that it was procured from the Interstate Commerce Commission, and persons sending to the commission for copies, must pay ten cents to cover postage.

The lines of the Pennsylvania Railroad system—East and West—in the six months ending July 1, 1914, carried 87,000,000 passengers, and not one of them was killed in a train accident. On the lines east of Pittsburgh no passenger has been killed in a train accident since 1912. During this period these lines alone have carried more than 161,000,000 passengers.

Two giant cacti, the largest ever moved from the desert, have been taken from Arizona by the Atchison, Topeka & Santa Fe to San Francisco, and have been placed at the entrance to the Hopi Indian village, which forms a part of the \$350,000 reproduction of the Grand canyon of Arizona. One of the cacti stands 25 ft. high and weighs 4,500 lb. The removal cost \$1,000 for each cactus.

The United States Board of Mediation and Conciliation, which went to Chicago last week in the effort to bring about a settlement of the controversy between the western roads and their engineers and firemen, has held daily conferences since Monday, July 20, with representatives of the Brotherhood of Locomotive Engineers and the Brotherhood of Locomotive Firemen and Enginemen and the Conference Committee of Managers. Up to the early part of this week no definite results had been accomplished.

Officers of the Catskill Mountain Railway, the Otis Railway and the Catskill & Tannersville Railway, three small companies, have applied to the New York State Workmen's Compensation Commission for release from the obligations of the new compensation law. Under the regulations they are called upon to pay \$7,000 a year as premium for state insurance; and this sum, they say, will nearly or quite bankrupt them. The companies are not able to pay the interest on all of their bonded debt. The New York Central & Hudson River proposes to test this new law in the courts, on the ground that it does not apply; this for the reason that the company is subject to the Federal law relating to compensation for accidents.

About 300 members of the Western Society of Engineers were

the guests of the Chicago & Western Indiana on July 25, on an excursion by special train to inspect the Chicago Clearing yard, now under construction, which is designed to handle the interchange business between the trunk line railroads entering Chicago. The yard will have facilities to move 8,000 to 10,000 cars a day. It is expected that it will be put in operation late this Autumn. On the way to Clearing stops were made for an inspection of the new lift bridge of the Pennsylvania Lines over the south branch of the Chicago river, which has a movable span of 272 ft. 10 in.; also of the separation of grades of the Chicago, Rock Island & Pacific and the Chicago & Western Indiana at Seventy-ninth street, where the roads cross each other at an angle of about 17 degrees. When the city required the elevation of the tracks above the street it was decided to separate the railroad grades as well, and the plan calls for five Rock Island tracks above and 10 Western Indiana tracks below, with Seventy-ninth street underneath both. The small angle of intersection, together with a street subway, requires a complicated structure.

Automatic Block Signals on the Pennsylvania

The Pennsylvania Railroad announces that on September 1 the main line between Pittsburgh and New York, and between Philadelphia and Washington will be equipped with automatic block signals throughout. With the completion on that day of recent elaborate improvements the Pennsylvania will have more four-track line operated under automatic signals than any railroad in the world. Within the past three years the company has equipped 253 miles of its main lines with automatic signals, at a cost of \$6,000,000.

The signal system on the lines east of Pittsburgh and Erie, automatic, non-automatic and interlocking, represents an estimated investment of approximately \$18,000,000. The electro-pneumatic interlocking switch and signal system in the New York station and on the electric line between Sunnyside yard, Long Island, and Manhattan Transfer, N. J., cost \$1,750,000. Eighteen hundred men are employed to maintain the Pennsylvania's signal system, and it costs \$1,500,000 yearly to keep these signals in order.

Opening of Cape Cod Canal

The Cape Cod Canal, connecting Buzzard's Bay with Cape Cod Bay and shortening by 70 miles the water route between New York and Boston, was opened to commerce July 29, but with only 15 ft. of water, about 10 ft. less depth than will be finally provided.

The dedication ceremonies took place at the village of Buzzard's Bay and were witnessed by thousands. Seth Low, president of the Chamber of Commerce of the state of New York, presided. The speakers included August Belmont, president of the canal company; Assistant Secretary of the Navy Roosevelt; Governor Walsh of Massachusetts, and Congressman Thomas C. Thacher, the representative from the Cape district.

Railway Revenues and Expenses for 1914

The Bureau of Railway News and Statistics, Chicago, has issued a bulletin giving the railway revenues and expenses of the railways in the United States for the fiscal year ending June 30, 1914, as computed from the monthly reports of the Interstate Commerce Commission, with the figures for June estimated from incomplete reports. The bulletin shows total operating revenues of \$3,091,669,713, a decrease of \$79,776,279, as compared with 1913, operating expenses as \$2,236,182,518, an increase of \$35,191,237, and net operating income as \$712,133,126, a decrease of \$130,276,210. The ratio of operating expenses to total operating revenues for the year was 72.33 per cent., as compared with 69.4 per cent. in 1913. This operating ratio is the highest in the history of American railways. The bulletin says that not

within a decade has the net income of the railways in the United States been as low per mile of line as for this year, and that when it is considered that a mile of railway in the United States represented a net investment of \$64,000 in 1914; against only \$52,000 in 1904, the true significance of the shrinkage in net income per mile of line becomes startlingly apparent. The difference of \$12,000 per mile represents the additional investment of over \$3,000,000,000, with no increase in revenue per mile to take care of it. While the total operating revenues were greater both absolutely and per mile of line, than in any year since 1907, except 1913, operating expenses were greater than for any previous year, although \$9 less per mile of line than for 1913. The net operating income per mile of line was \$2,812, as compared with \$3,384 in 1913, and \$3,342 in 1907. The ratio of net operating income to total operating revenues was 23.03 per cent. The operating ratio for the last half of the year is given as 75.7 per cent. Of the \$79,000,000 lost in gross revenues, over \$75,000,000 was in freight traffic, while the earnings in passenger traffic show an increase of about \$59,000.

Bulletin of Revenues and Expenses of Large Steam Roads in May

The advance figures in Section I of this summary have been compiled by the Interstate Commerce Commission from the reports of operating revenues and expenses of roads having annual operating revenues above \$1,000,000 for the month of

the opinion that the full crew bill as presented at the last legislature was a little too drastic, and asks if the men can have support if the bill is modified to place an additional brakeman on freight trains consisting of more than 30 cars. The letter also contains the following: "The trainmen of the state come directly in contact with many of her citizens and are in a position, therefore, to do much good to the office seeker, and we take the liberty at this time to ascertain if our measures will receive the support due them at your hands at the next session of the legislature." A reply to this letter was sent to the legislators and candidates by C. W. Kouns, general manager of the Atchison, Topeka & Santa Fe, as chairman of the Kansas committee of the Committee on Relation of Railway Legislation to Operation. He says: "The 'full crew' is a term which tends to deceive those who are not familiar with railroad phraseology. It gives the impression that the railroads are operating with short crews, which is not so. The conductor, two brakemen, the engineer and firemen constitute a full crew on trains where five men are sufficient for the duties devolving upon them. On many trains three brakemen already are employed, when three are needed to do the work. These are local freight trains stopping at stations to load and unload shipments, and to place cars for loading and unloading. Most of these local trains, on which three brakemen are employed, haul less than 30 cars, while Mr. Snider's campaign is to induce the legislature to force the railroad to employ three brakemen on the through freight trains which have practically

SECTION I—COMPARATIVE FIGURES BASED ON REPORTS OF 177 LARGE ROADS

FOR THE MONTH OF MAY

Item	United States		Eastern District		Southern District		Western District	
	1914	1913	1914	1913	1914	1913	1914	1913
Average mileage operated.....	223,796.87	221,993.80	57,162.53	57,003.83	42,077.34	41,994.48	124,557.00	122,995.49
Operating revenues.....	\$227,914,276	\$252,553,478	\$99,348,323	\$113,287,429	\$37,082,330	\$38,703,875	\$91,483,623	\$100,562,174
Operating expenses.....	172,804,501	182,687,409	77,246,785	83,264,508	28,162,078	28,898,799	67,395,638	70,524,102
Net operating revenue.....	55,109,775	69,866,069	22,101,538	30,022,921	8,920,252	9,805,076	24,087,985	30,038,072
Revenues per mile.....	1,018	1,138	1,738	1,987	881	921	734	818
Expenses per mile.....	772	823	1,351	1,461	669	688	541	573
Net revenue per mile.....	246	315	387	526	212	233	193	245

FOR THE ELEVEN MONTHS ENDING WITH MAY

	1914	1913	1914	1913	1914	1913	1914	1913
Average mileage operated.....	223,244.17	221,217.42	57,212.58	56,972.88	42,024.15	41,927.26	124,007.34	122,317.28
Operating revenues.....	\$2,695,185,747	\$2,758,282,992	\$1,157,112,428	\$1,196,115,009	\$430,034,439	\$419,687,083	\$1,108,038,880	\$1,142,480,900
Operating expenses.....	1,945,738,543	1,912,466,260	882,915,981	857,591,796	311,180,783	300,506,987	751,641,779	754,367,477
Net operating revenue.....	749,447,204	845,816,732	274,196,447	338,523,213	118,853,656	119,180,096	356,397,101	388,113,423
Revenues per mile.....	12,073	12,469	20,225	20,994	10,233	10,010	8,935	9,340
Expenses per mile.....	8,716	8,645	15,432	15,053	7,405	7,167	6,061	6,167
Net revenue per mile.....	3,357	3,824	4,793	5,941	2,828	2,843	2,874	3,173

SECTION II—FIGURES REPRODUCED FROM THE BULLETIN OF REVENUES AND EXPENSES OF ALL LARGE ROADS

FOR THE MONTH OF MAY

	1913	1912	1913	1912	1913	1912	1913	1912
Average mileage operated.....	222,172.02	220,458.83	58,036.52	57,915.49	41,713.04	41,511.13	122,422.46	121,032.21
Revenues per mile.....	\$1,154	\$1,030	\$2,023	\$1,727	\$923	\$857	\$820	\$755
Expenses per mile.....	833	735	1,479	1,253	689	626	576	524
Net revenue per mile.....	321	295	544	474	234	231	244	231

FOR THE ELEVEN MONTHS ENDING WITH MAY

	1913	1912	1913	1912	1913	1912	1913	1912
Average mileage operated.....	221,651.88	219,527.30	58,005.56	57,821.76	41,646.09	41,287.01	122,000.23	120,419.53
Revenues per mile.....	\$12,649	\$11,532	\$21,409	\$19,348	\$10,038	\$9,416	\$9,375	\$8,503
Expenses per mile.....	8,753	7,982	15,260	13,642	7,191	6,676	6,192	5,712
Net revenue per mile.....	3,896	3,550	6,149	5,706	2,847	2,740	3,183	2,791

May, 1914, filed in the division of statistics by July 10, 1914. The figures, which are subject to correction, embrace returns for 177 roads.

The figures in Section II are reproduced from the printed Bulletin of Revenues and Expenses of large roads for the same month of 1913.

The Campaign of 1915

The Kansas railroads and representatives of the Brotherhood of Railroad Trainmen have addressed letters to members of the legislature and candidates for the legislature, regarding proposed labor legislation to be introduced in the next session. The first letter was sent by R. U. Snider, representative of the Brotherhood of Railway Trainmen. He says that the measures introduced "for the benefit of railroad men" at the last session of legislature, which were defeated, will again be presented to the next session of the legislature, though partly modified, and that the one most desired is the full crew bill. He expresses

nothing for two brakemen to do from one terminal to another."

Mr. Kouns calls on the legislators to withhold assent to this unfair bill, imposing a useless financial burden on the Kansas railroads, until after a thorough investigation.

Summary of Revenues and Expenses of Steam Roads

The Bureau of Railway Economics' summary of revenues and expenses and comments thereon for May, 1914, are as follows: Railways operating 225,858 miles of line are covered by this summary, or about 90 per cent. of all steam railway mileage in the United States. Their operating revenues for the month of May, 1914, amounted to \$232,567,938. This amount includes revenues from freight and passenger traffic, from carrying mail and express, and from miscellaneous sources connected with rail operation. Compared with May, 1913, total operating revenues show a decrease of \$25,038,021. Total operating revenues per mile averaged \$1,030 in May, 1914, and \$1,150 in May, 1913, a decrease of \$120, or 10.4 per cent. There was a decrease

of 13.4 per cent. in freight revenue per mile, and a decrease of 2.8 per cent. in passenger revenue per mile.

Operating expenses, which include all the costs of maintaining track and equipment, operating trains, securing traffic, and of administration, amounted to \$176,029,940. This was \$9,921,181 less than for May, 1913. These operating expenses per mile of line averaged \$779 in May, 1914, and \$830 in May, 1913, a decrease of \$51 per mile, or 6.1 per cent.

Net operating revenue, that is, total operating revenues less operating expenses, amounted to \$56,537,998, which was \$15,116,840 less than for May, 1913. Net operating revenue per mile of line averaged \$250 in May, 1914, and \$320 in May, 1913, a decrease of \$70 per mile, or 21.7 per cent.

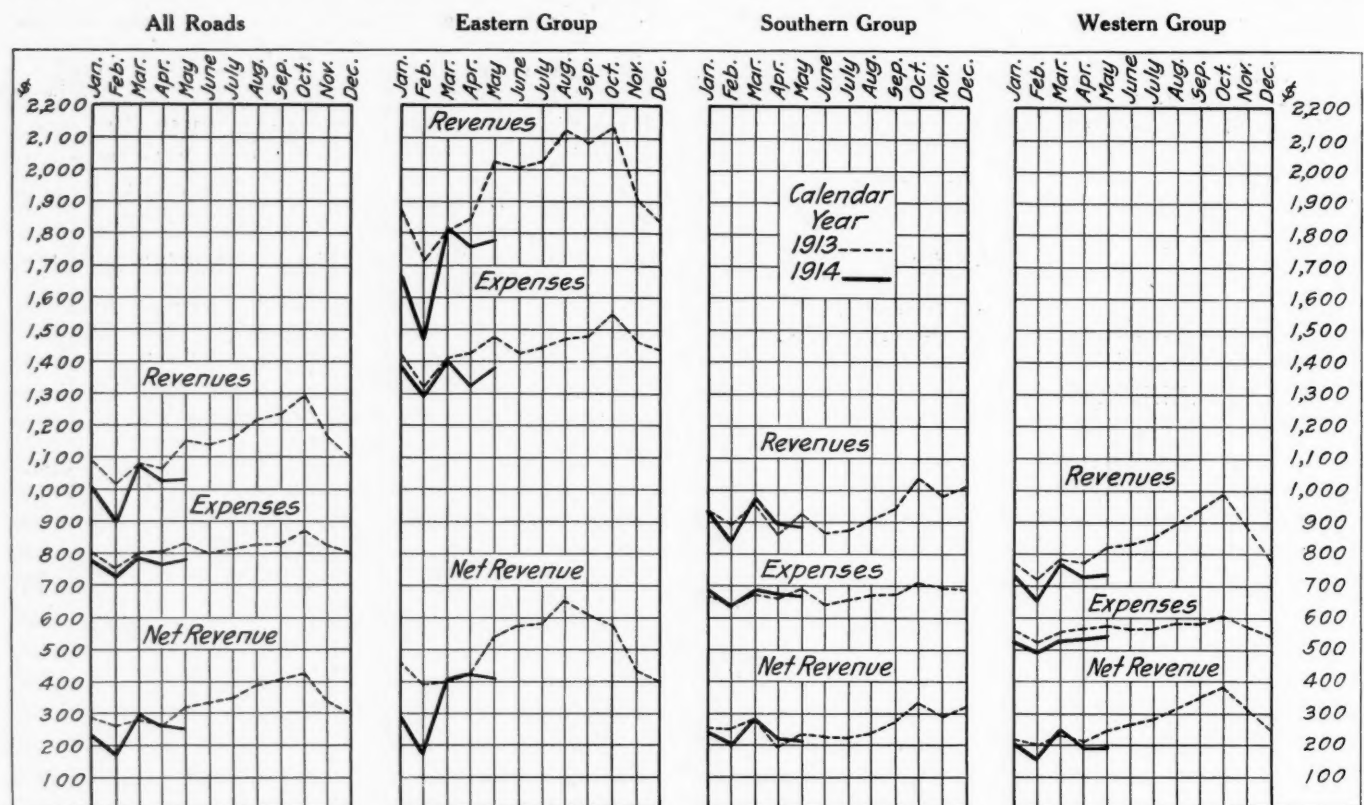
Taxes for the month of May amounted to \$11,905,010, or \$53 per mile, an increase of 11.2 per cent. over May, 1913.

Operating income, which is net revenue from rail and auxiliary operations, less taxes, averaged \$197 per mile of line, and in May, 1913, \$273, thus decreasing \$76, or 27.9 per cent. Operating income for each mile of line for each day in May averaged \$6.35, and for May, 1913, \$8.81. Operating income is that pro-

portion of their operating receipts which remains available to the railways for rentals, interest on bonds, appropriations for betterments, improvements, new construction, and for dividends.

When the returns for the five months of the calendar year 1914 are compared with those of the corresponding months of 1913, they show a decrease in total operating revenues per mile of 3.2 per cent., an increase in operating expenses per mile of 0.9 per cent., and a decrease in net operating revenue per mile of 12.4 per cent. This net operating revenue per mile decreased 19.5 per cent. in the east as compared with the corresponding period of the previous year, decreased 0.5 per cent. in the south, and decreased 9.7 per cent. in the west.

The diagram shows the variations in operating revenues, operating expenses, and net operating revenue per mile for the separate months of the calendar year 1913 and of the calendar year



Monthly Revenues and Expenses per Mile of Line in 1914

portion of their operating receipts which remains available to the railways for rentals, interest on bonds, appropriations for betterments, improvements, new construction, and for dividends.

The operating ratio for May, that is, the per cent. of total operating revenues absorbed in operating expenses, was 75.7 per cent., which is comparable with 72.2 per cent. in May, 1913, and 71.4 per cent. in May, 1912.

The railways of the eastern district show a decrease in total operating revenues per mile of line as compared with May, 1913, of 12.3 per cent., the railways of the southern district a decrease of 4.4 per cent., and the railways of the western district a decrease of 10.2 per cent. Operating expenses per mile decreased 7.3 per cent. in the east, decreased 2.7 per cent. in the south, and decreased 5.6 per cent. in the west. Net operating revenue per mile decreased 26.1 per cent. in the east, decreased 9.2 per cent. in the south, and decreased 21.0 per cent. in the west. Taxes per mile show an increase of 6.3 per cent. in the east, an increase of 13.8 per cent. in the south, and an increase of 15.5 per cent. in the west. Operating income per mile decreased 32.1 per cent. in the east, decreased 12.9 per cent. in the south, and decreased 28.1 per cent. in the west.

Comparison of returns for eleven months of the current fiscal

1914 to date. The following table shows the per cent. of operating revenues consumed by each class of expenses:

	May.		Fiscal year ending June 30.		Eleven months ending May 31.	
	1914.	1913.	1913.	1912.	1914.	1913.
Freight revenue	68.4	70.7	69.8	68.7	69.1	70.0
Passenger revenue	23.1	21.3	22.2	23.2	22.8	22.0
Other transportation	7.3	6.9	6.9	7.1	7.0	6.9
Non-transportation	1.2	1.1	1.1	1.0	1.1	1.1
Maintenance of way and structures	15.5	15.3	13.3	12.7	13.4	13.2
Maintenance of equipment ..	18.6	17.2	16.4	15.9	17.6	16.4
Traffic expenses	2.2	2.1	2.0	2.1	2.1	2.0
Transportation expenses	36.5	35.1	35.2	35.9	36.4	35.2
General expenses	2.9	2.5	2.4	2.5	2.6	2.4
Total operating expenses (excluding outside operations and taxes)	75.7	72.2	69.3	69.1	72.1	69.2
Averages per mile per day:						
Operating revenues per mile per day	\$33.22	\$37.09	\$37.76	\$34.78	\$36.41	\$37.61
Operating expenses per mile per day	25.14	26.77	26.17	24.05	26.26	26.02
Net operating revenue per mile per day	8.08	10.32	11.59	10.73	10.15	11.59
Operating income per mile per day	6.35	8.81	10.08	9.28	8.48	10.11

Association of Railroad Superintendents

The twenty-seventh annual meeting of the American Association of Railroad Superintendents, which is to be held in New York City on August 20 and 21, will be held at the Hotel Woodward. The Long Island Railroad has extended the courtesy of a free trip for members of the association over a portion of its electrified territory, including Flushing, Jamaica, Flatbush Avenue station, Jamaica Bay trestle and Long Beach. Aside from this no definite plan of entertainment has been outlined. It is expected that the program will include addresses by a railroad president, a vice-president, and a superintendent of transportation, in addition to the reports of committees.

MEETINGS AND CONVENTIONS

The following list gives names of secretaries, dates of next or regular meetings, and places of meeting.

- AIR BRAKE ASSOCIATION.**—F. M. Nellis, 53 State St., Boston, Mass. Next convention, May 4-7, 1915, Hotel Sherman, Chicago.
- AMERICAN ASSOCIATION OF DEMURRAGE OFFICERS.**—A. G. Thomason, Boston, Mass.
- AMERICAN ASSOCIATION OF DINING CAR SUPERINTENDENTS.**—H. C. Boardman, D. L. & W., Hoboken, N. J. Next convention, October, Washington.
- AMERICAN ASSOCIATION OF GENERAL PASSENGER AND TICKET AGENTS.**—W. C. Hope, 143 Liberty St., New York.
- AMERICAN ASSOCIATION OF FREIGHT AGENTS.**—R. O. Wells, I. C. R. R., East St. Louis, Ill.
- AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.**—E. H. Harman, Room 101, Union Station, St. Louis, Mo. Next convention, August 20 and 21, New York.
- AMERICAN ELECTRIC RAILWAY ASSOCIATION.**—E. B. Burritt, 29 W. 39th St., New York. Annual convention, October 12-16, Atlantic City, N. J.
- AMERICAN ELECTRIC RAILWAY MANUFACTURERS' ASSOCIATION.**—H. G. McConaughy, 165 Broadway, New York. Meetings with American Electric Railway Association.
- AMERICAN RAILWAY ASSOCIATION.**—W. F. Allen, 75 Church St., New York.
- AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.**—C. A. Lichty, C. & N. W., Chicago. Next convention, October 20-22, 1914, Los Angeles, Cal.
- AMERICAN RAILWAY ENGINEERING ASSOCIATION.**—E. H. Fritch, 900 S. Michigan Ave., Chicago. Next convention, March 16-18, 1915.
- AMERICAN RAILWAY MASTER MECHANICS' ASSOCIATION.**—J. W. Taylor, Karpen Bldg., Chicago.
- AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.**—A. R. Davis, Central of Georgia, Macon, Ga.
- AMERICAN SOCIETY FOR TESTING MATERIALS.**—Prof. E. Marburg, University of Pennsylvania, Philadelphia, Pa.
- AMERICAN SOCIETY OF CIVIL ENGINEERS.**—Chas. W. Hunt, 220 West 57th St., New York; 1st and 3d Wednesday, except June, July and August, New York.
- AMERICAN SOCIETY OF ENGINEERING CONTRACTORS.**—J. R. Wemlinger, 11 Broadway, New York; 2d Thursday of each month, at 2 P. M., 11 Broadway, New York.
- AMERICAN SOCIETY OF MECHANICAL ENGINEERS.**—Calvin W. Rice, 29 W. 39th St., New York.
- AMERICAN WOOD PRESERVERS' ASSOCIATION.**—F. J. Angier, B. & O., Baltimore, Md. Next convention, January 19-21, 1915, Chicago.
- ASSOCIATION OF AMERICAN RAILWAY ACCOUNTING OFFICERS.**—E. R. Woodson, 1300 Pennsylvania Ave., Washington, D. C. Annual convention, April 28, 1915, Atlanta, Ga.
- ASSOCIATION OF RAILWAY CLAIM AGENTS.**—C. W. Egan, B. & O., Baltimore, Md.
- ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.**—Jos. A. Andreucetti, C. & N. W. Ry., Chicago. Annual convention, October 19-23, Chicago.
- ASSOCIATION OF RAILWAY TELEGRAPH SUPERINTENDENTS.**—P. W. Drew, 112 West Adams St., Chicago.
- ASSOCIATION OF TRANSPORTATION AND CAR ACCOUNTING OFFICERS.**—G. P. Conard, 75 Church St., New York.
- ASSOCIATION OF WATER LINE ACCOUNTING OFFICERS.**—W. R. Evans, Chamber of Commerce, Buffalo, N. Y.
- BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.**—L. D. Mitchell, Detroit Graphite Co., Chicago, Ill. Meeting with American Railway Bridge and Building Association.
- CANADIAN RAILWAY CLUB.**—James Powell, Grand Trunk Ry., Montreal, Que.; 2d Tuesday in month, except June, July and August, Windsor Hotel, Montreal.
- CANADIAN SOCIETY OF CIVIL ENGINEERS.**—Clement H. McLeod, 176 Mansfield St., Montreal, Que.; 1st Thursday, October, November, December, February, March and April, Montreal.
- CAR FOREMEN'S ASSOCIATION OF CHICAGO.**—Aaron Kline, 841 Lawler Ave., Chicago; 2d Monday in month, except July and August, Lytton Bldg., Chicago.
- CENTRAL RAILWAY CLUB.**—H. D. Vought, 95 Liberty St., New York; 2d Friday in January, May, September and November and 2d Thursday in March, Hotel Statler, Buffalo, N. Y.
- CIVIL ENGINEERS' SOCIETY OF ST. PAUL.**—Edw. J. Dugan, P. O. Box 654, St. Paul, Minn.; 2d Monday, except June, July, August and September, Old State Capitol Bldg., St. Paul.
- ENGINEERS' SOCIETY OF PENNSYLVANIA.**—Edw. R. Dasher, Box 75, Harrisburg, Pa.; 1st Friday after 10th of each month, except July and August, 31 So. Front St., Harrisburg, Pa.
- ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA.**—Elmer K. Hiles, Oliver Bldg., Pittsburgh; 1st and 3d Tuesday, Pittsburgh, Pa.
- FREIGHT CLAIM ASSOCIATION.**—Warren P. Taylor, Richmond, Va.
- GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.**—A. M. Hunter, 605 Grand Central Station, Chicago; Wednesday preceding 3d Thursday, Transportation Bldg., Chicago.
- INTERNATIONAL RAILWAY CONGRESS.**—Executive Committee, 11, rue de Louvain, Brussels, Belgium. Convention, 1915, Berlin.
- INTERNATIONAL RAILWAY FUEL ASSOCIATION.**—C. G. Hall, 922 McCormick Bldg., Chicago.
- INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.**—Wm. Hall, 829 West Broadway, Winona, Minn.
- INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.**—A. L. Woodworth, Lima, Ohio. Next convention, August 18-20, Hotel Wisconsin, Milwaukee, Wis.
- MAINTENANCE OF WAY & MASTER PAINTERS' ASSOCIATION OF THE UNITED STATES AND CANADA.**—T. I. Goodwin, C. R. I. & P., Eldon, Mo. Next convention, November 17-19, 1914, Detroit, Mich.
- MASTER BOILER MAKERS' ASSOCIATION.**—Harry D. Vought, 95 Liberty St., New York.
- MASTER CAR BUILDERS' ASSOCIATION.**—J. W. Taylor, Karpen Bldg., Chicago.
- MASTER CAR & LOCOMOTIVE PAINTERS' ASSOCIATION OF THE UNITED STATES AND CANADA.**—A. P. Dane, B. & M., Reading, Mass. Next convention, September 8-11, Nashville, Tenn.
- NATIONAL RAILWAY APPLIANCE ASSOCIATION.**—Bruce V. Crandall, 537 So. Dearborn St., Chicago. Next convention, March 15 to 19, 1915, Chicago.
- NEW ENGLAND RAILROAD CLUB.**—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass.; 2d Tuesday in month, except June, July, August and September, Boston.
- NEW YORK RAILROAD CLUB.**—H. D. Vought, 95 Liberty St., New York; 3d Friday in month, except June, July and August, New York.
- NIAGARA FRONTIER CAR MEN'S ASSOCIATION.**—E. Frankenberger, 623 Brisbane Bldg., Buffalo, N. Y. Meetings monthly.
- PEORIA ASSOCIATION OF RAILROAD OFFICERS.**—M. W. Rotchford, Union Station, Peoria, Ill.; 2d Thursday in month, Jefferson Hotel, Peoria.
- RAILROAD CLUB OF KANSAS CITY.**—C. Manlove, 1008 Walnut St., Kansas City, Mo.; 3d Friday in month, Kansas City.
- RAILROAD MASTER TINNERS, COPPERSMITHS & PIPEFITTERS' ASSOCIATION.**—U. G. Thompson, C. & E. I., Danville, Ill.
- RAILWAY BUSINESS ASSOCIATION.**—Frank W. Noxon, 30 Church St., New York.
- RAILWAY CLUB OF PITTSBURGH.**—J. B. Anderson, Penna. R. R., Pittsburgh, Pa.; 4th Friday in month, except June, July and August, Pittsburgh.
- RAILWAY DEVELOPMENT ASSOCIATION.**—W. Nicholson, Kansas City Southern, Kansas City, Mo.
- RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOCIATION.**—J. Scribner, 1021 Monadnock Block, Chicago. Meetings with Association of Railway Electrical Engineers.
- RAILWAY FIRE PROTECTION ASSOCIATION.**—C. B. Edwards, Mobile & Ohio, Mobile, Ala. Annual meeting, October 6, Washington, D. C.
- RAILWAY GARDENING ASSOCIATION.**—J. S. Butterfield, Lee's Summit, Mo.
- RAILWAY SIGNAL ASSOCIATION.**—C. C. Rosenberg, Bethlehem, Pa. Annual meeting, Bluff Point, N. Y., September 22-24.
- RAILWAY STOREKEEPERS' ASSOCIATION.**—J. P. Murphy, Box C, Collinwood, Ohio.
- RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.**—J. D. Conway, 2136 Oliver Bldg., Pittsburgh, Pa. Meetings with M. C. B. and M. M. Associations.
- RAILWAY TELEGRAPH & TELEPHONE APPLIANCE ASSOCIATION.**—G. A. Nelson, 50 Church St., New York. Meetings with Association of Railway Telegraph Superintendents.
- RICHMOND RAILROAD CLUB.**—F. O. Robinson, C. & O., Richmond, Va.; 2d Monday in month, except June, July and August.
- ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.**—L. C. Ryan, C. & N. W., Sterling, Ill. Next convention, September 8-10, 1914, Chicago.
- ST. LOUIS RAILWAY CLUB.**—B. W. Frauenthal, Union Station, St. Louis, Mo.; 2d Friday in month, except June, July and August, St. Louis.
- SALT LAKE CITY TRANSPORTATION CLUB.**—R. E. Rowland, Hotel Utah Bldg., Salt Lake City, Utah; 1st Saturday of each month, Salt Lake City.
- SIGNAL APPLIANCE ASSOCIATION.**—F. W. Edmunds, 3868 Park Ave., New York. Meeting with annual convention Railway Signal Association.
- SOCIETY OF RAILWAY FINANCIAL OFFICERS.**—Carl Nyquist, La Salle St. Station, Chicago. Annual meeting, September 15-17, Hotel Aspinwall, Lenox, Mass.
- SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.**—E. W. Sandwich, A. & W. P. Ry., Atlanta, Ga.
- SOUTHERN & SOUTHWESTERN RAILWAY CLUB.**—A. J. Merrill, Grant Bldg., Atlanta, Ga.; 3d Thursday, January, March, May, July, September, November, 10 A. M., Candler Bldg., Atlanta.
- TOLEDO TRANSPORTATION CLUB.**—J. S. Marks, Agent, Interstate Despatch, Toledo, Ohio; 1st Saturday in month, Boody House, Toledo.
- TRACK SUPPLY ASSOCIATION.**—W. C. Kidd, Ramapo Iron Works, Hillsburn, N. Y. Meetings with Roadmasters' and Maintenance of Way Association.
- TRAFFIC CLUB OF CHICAGO.**—W. H. Wharton, La Salle Hotel, Chicago.
- TRAFFIC CLUB OF NEW YORK.**—C. A. Swope, 291 Broadway, New York; last Tuesday in month, except June, July and August, Waldorf-Astoria, New York.
- TRAFFIC CLUB OF PITTSBURGH.**—D. L. Wells, Erie R. R., Pittsburgh, Pa.; meetings bimonthly, Pittsburgh. Annual meeting, 2d Monday in June.
- TRAFFIC CLUB OF ST. LOUIS.**—A. F. Versen, Mercantile Library Bldg., St. Louis, Mo. Annual meeting in November. Noonday meetings October to May.
- TRAIN DESPATCHERS' ASSOCIATION OF AMERICA.**—J. F. Mackie, 7122 Stewart Ave., Chicago.
- TRANSPORTATION CLUB OF BUFFALO.**—J. M. Sells, Buffalo; first Saturday after first Wednesday.
- TRANSPORTATION CLUB OF DETROIT.**—W. R. Hurley, Superintendent's office, L. S. & M. S., Detroit, Mich.; meetings monthly, Normandie Hotel, Detroit.
- TRAVELING ENGINEERS' ASSOCIATION.**—W. O. Thompson, N. Y. C. & H. R., East Buffalo, N. Y. Next meeting, September 15-18, Hotel Sherman, Chicago.
- UTAH SOCIETY OF ENGINEERS.**—Frank W. Moore, Newhouse Bldg., Salt Lake City, Utah; 3d Friday of each month, except July and August, Consolidated Music Hall, Salt Lake City.
- WESTERN CANADA RAILWAY CLUB.**—W. H. Rosevear, P. O. Box 1707, Winnipeg, Man.; 2d Monday, except June, July and August, Winnipeg.
- WESTERN RAILWAY CLUB.**—J. W. Taylor, 1112 Karpen Bldg., Chicago; 3d Tuesday of each month, except June, July and August, Karpen Bldg., Chicago.
- WESTERN SOCIETY OF ENGINEERS.**—J. H. Warder, 1735 Monadnock Block, Chicago; regular meeting 1st Monday in month, except January, July and August, Chicago. Extra meetings, except in July and August, generally on other Monday evenings.

Traffic News

The definite announcement of a steamship passenger service from the Atlantic to the Pacific coast through the Panama Canal to be inaugurated with the opening of the Panama-Pacific International Exposition has been made by the traffic department of the exposition. The International Mercantile Company will operate the "Panama-Pacific Line." The trips will be made by the *Finland* and the *Kroonland*, two of the finest Atlantic ocean vessels and both in the Red Star fleet.

Clifford Thorne, chairman of the Iowa Railroad Commission, has already begun a campaign against the expected plan for an advance in freight rates on the western roads. He has ad-

week by the Association of Western Railways, and says: "It would be well for the shippers of the state to heed its suggestions. Much can be done to ease the situation when car shortage begins by following the suggestions of the Association of Western Railways."

Car Surpluses and Shortages

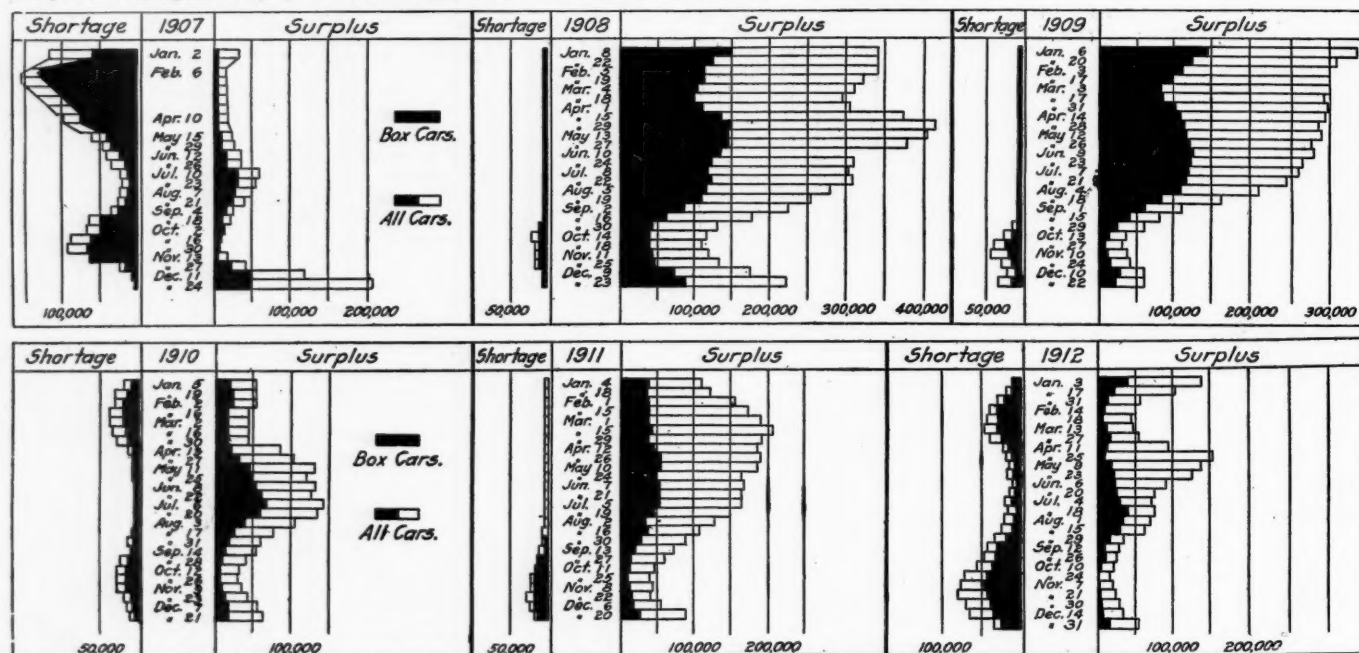
Arthur Hale, chairman of the committee on relations between railroads, of the American Railway Association, in presenting statistical bulletin No. 171-A, giving a summary of car surpluses and shortages by groups from July 15, 1913, to July 15, 1914 says: The total surplus on July 15, 1914, was 228,384 cars; on July 1, 1914, 220,875 cars, and on July 15, 1913, 76,280 cars.

The total surplus increased about 7,500 cars in the past two weeks, and stands at 228,384, the largest for the same period in any year since 1909.

Surplus coal cars increased generally, and the total box car surplus shows an increase in all sections, except in the winter

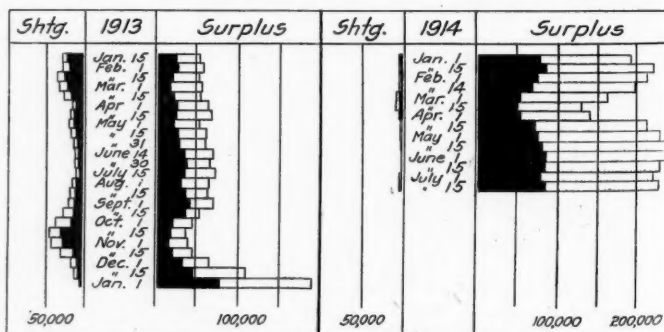
CAR SURPLUSES AND SHORTAGES										
Date	No. of roads.	Surpluses				Shortages				
		Box.	Flat.	Coal, gondola and hopper.	Other kinds.	Box.	Flat.	Coal, gondola and hopper.	Other kinds.	Total.
Group *1.—July 15, 1914.....	8	2,092	345	1,589	450	13	3	11	2	29
" 2.—" 15, 1914.....	28	3,573	244	23,189	9,497	0	6	0	0	6
" 3.—" 15, 1914.....	32	5,970	738	44,619	4,887	98	50	0	214	362
" 4.—" 15, 1914.....	12	5,849	2,009	6,563	1,728	0	17	0	0	17
" 5.—" 15, 1914.....	23	1,691	622	5,710	1,658	251	2	0	0	253
" 6.—" 15, 1914.....	29	19,877	510	5,933	5,721	194	9	5	7	215
" 7.—" 15, 1914.....	4	2,563	41	723	1,249	0	0	0	0	0
" 8.—" 15, 1914.....	15	11,877	363	2,203	4,157	126	113	154	16	409
" 9.—" 15, 1914.....	14	870	128	122	892	6	15	106	0	127
" 10.—" 15, 1914.....	22	12,993	1,228	2,858	9,281	179	196	16	34	425
" 11.—" 15, 1914.....	4	18,638	701	0	2,433	0	0	0	0	0
Total	191	85,993	6,929	93,509	41,953	867	411	292	273	1,843

*Group 1 is composed of New England lines; Group 2—New York, New Jersey, Delaware, Maryland and Eastern Pennsylvania lines; Group 3—Ohio, Indiana, Michigan and Western Pennsylvania lines; Group 4—West Virginia, Virginia, North and South Carolina lines; Group 5—Kentucky, Tennessee, Mississippi, Alabama, Georgia and Florida lines; Group 6—Iowa, Illinois, Wisconsin and Minnesota lines; Group 7—Montana, Wyoming, Nebraska, North Dakota and South Dakota lines; Group 8—Kansas, Colorado, Missouri, Arkansas and Oklahoma lines; Group 9—Texas, Louisiana and New Mexico lines; Group 10—Washington, Oregon, Idaho, California, Nevada and Arizona lines; Group 11—Canadian lines.



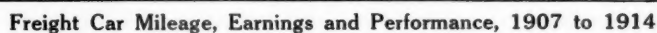
ressed to the western state commissions a long letter enclosing a copy of a "strictly private and confidential" letter sent out by J. M. Johnson as chairman of a meeting of western railroad officers held in Chicago in May to consider the matter of asking for an increase in rates. The letter outlined a tentative plan which had been considered at that meeting. Mr. Thorne calls on the western commissioners to "give the matter some consideration." He estimates from the tentative plan that the western railroads "have agreed to attempt to secure an advance in freight revenues aggregating \$100,000,000."

Chairman John H. Roemer, of the Wisconsin Railroad Commission, has issued a public statement to shippers, advising that all coal, lumber and cement shipments be made immediately, before the time to move crops, in order to avoid the possibility of a car shortage. Mr. Roemer cites the circular sent out last



Car Surpluses and Shortages, 1907 to 1914

The table on the next page gives car balance and performance in the month covered by the report, and the diagram shows car earnings and car mileage and different car performance figures monthly from July, 1907.



CAR BALANCE AND PERFORMANCE IN MARCH, 1914

	New England	N. Y., N. J., Del., Md., Eastern Pa.	Ohio, Ind., Mich., Western Pa.	Va., W. Va., No. and So. Carolina.	Ky., Tenn., Miss., Ala., Ga., Fla.	Iowa, Ill., Minn.	Mont., Wyo., Neb., Dakotas.	Kan., Colo., Okla., Mo., Ark.	Texas, La., New Mex.	Ore., Idaho, Nev., Cal., Ariz.	Canadian Lines.	Grand Total.
Revenue freight cars owned.....	89,574	704,330	207,712	199,116	178,570	456,391	20,242	145,910	31,358	144,680	177,958	2,355,841
Average number of system cars on line.....	30,977	408,916	131,410	122,210	102,371	323,773	8,970	89,276	22,569	72,156	116,089	1,435,717
Railway-owned cars: Average foreign on line.....	49,149	268,961	93,238	75,579	61,967	127,334	10,162	56,103	17,827	35,541	37,378	833,459
Total railway-owned cars on line.....	100,126	677,877	224,668	197,789	164,338	451,107	19,132	145,379	40,396	114,697	153,667	2,289,176
Excess.....	10,552	*26,453	16,956	*1,327	*14,232	*5,284	*1,110	*531	9,038	*29,983	*24,291	*66,665
Per cent. of cars on line to total owned:												
Home.....	57	58	63	61	57	71	44	61	72	55	65	62
Foreign.....	55	38	45	38	35	28	50	34	27	24	21	35
All railways.....	112	96	108	99	92	99	94	95	129	79	86	97
Private cars on line.....	4,038	33,087	9,192	5,652	9,423	15,652	1,845	7,335	4,244	9,505	2,589	102,562
Total all cars on line.....	104,164	710,964	233,860	203,441	173,761	466,759	20,977	152,714	44,640	124,202	156,256	2,391,738
Per cent. of cars in shop.....	7.34	7.53	12.09	8.06	9.48	6.07	6.45	9.65	8.72	7.30	5.50	7.91
No. of freight engines owned.....	1,470	10,875	3,114	3,510	7,408	2,939	502	2,921	847	2,940	2,632	39,158
Average cars on line per freight engine owned.....	70	65	75	58	59	63	42	52	53	38	59	61
Total freight-car mileage.....	59,027,401	514,888,004	148,720,853	153,828,770	141,495,257	338,726,854	25,236,392	104,188,170	36,265,337	124,487,337	109,165,188	1,756,029,563
Average miles per car per day.....	18.3	24.4	20.6	24.4	26.3	23.3	38.8	22.9	26.7	32.3	22.5	23.8
Per cent. loaded mileage.....	72.8	66.3	68.3	65.4	70.3	70.0	74.5	66.7	63.3	54.7	77.7	67.6
Ton-miles of freight, including company freight.....	709,346,116	8,503,635,392	2,416,375,155	2,446,530,298	2,131,809,776	4,152,153,908	383,342,492	1,128,283,835	440,877,582	1,716,568,211	1,640,145,264	25,669,068,029
Average ton-miles, including company freight:												
Per car-mile.....	12.0	16.5	16.3	15.9	15.1	15.1	15.2	13.6	12.2	14.4	15.0	15.4
Per loaded car-mile.....	16.5	24.9	23.9	24.3	22.0	21.6	19.2	20.3	19.2	26.7	19.3	21.0
Per car per day.....	220	386	338	388	399	366	589	316	321	458	339	369
Gross freight earnings.....	\$7,397,823	\$49,053,867	\$13,672,476	\$15,009,551	\$14,028,667	\$34,568,074	\$2,728,688	\$11,043,671	\$2,698,727	\$17,876,525	\$11,265,489	\$179,343,558
Average daily earnings: Per car owned.....	\$2.66	\$2.24	\$2.12	\$2.43	\$2.53	\$2.44	\$4.35	\$2.35	\$2.78	\$3.99	\$2.04	\$2.45
Per railroad car on line.....	2.38	2.33	1.96	2.45	2.75	2.47	4.60	2.45	2.16	5.05	2.36	2.53
All cars on line.....	2.29	2.23	1.89	2.38	2.60	2.39	4.20	2.33	1.95	4.66	2.33	2.42

*Denotes deficiency.

Commission and Court News

INTERSTATE COMMERCE COMMISSION

The commission is to make a general country-wide investigation into the practice of railroads in refusing to accept freight at certain points for lack of cars or other reasons.

Examiner Esch held a hearing at Chicago last week in an investigation by the commission in the matter of stopping in transit for partial loading and unloading of livestock. The Western Trunk Line roads in May filed tariffs increasing the charge for stopping a train for partial loading or unloading from \$2 to \$5, which were suspended by the commission. The roads now want to abandon the stops.

Examiner Brown held a hearing in Chicago on July 21, on the complaint of the E. C. Best Company, of Milwaukee, charging unreasonable and discriminatory rates on potatoes in heated cars for shipment to Minnesota, North and South Dakota, Wisconsin, Illinois and Missouri points. A new tariff was filed in April, making increases of 4 to 7 cents per hundred pounds to these points, which the complainant alleges to be discriminatory to Minnesota potato shippers. The shippers also object to an alternative clause in the new tariff, which provides a rate for a car heated by the carrier and another rate for cars to be heated by the shipper.

A hearing was held at Chicago last week before Examiner Brown, on a petition filed by the Atchison, Topeka & Santa Fe, Chicago, Burlington & Quincy, Missouri, Kansas & Texas, Missouri Pacific, St. Louis & San Francisco, Kansas City Southern, St. Joseph & Grand Island and the Union Pacific, asking for the cancellation of a tariff filed by the Kansas City Stockyards Company, imposing a trackage charge of 75 cents a car on every carload of cattle sent into the yards of the Stockyards company, for unloading, or loading, at a stockyards chute. The Stockyards company does not operate engines, the cars being brought onto its tracks by the locomotives of the trunk line carriers. The railroads allege that these tracks are mere plant facilities.

Complaint has been filed with the Interstate Commerce Commission by Charles R. McCormick & Co., against the San Pedro, Los Angeles & Salt Lake and other roads, in a case similar to the Shreveport rate case recently decided by the Supreme Court. The complaint involves rates made by the Arizona Railroad Commission, which result in rates on lumber and forest products from Flagstaff, Williams and Cliff, Ariz., to other Arizona points, lower than from San Pedro and Los Angeles, Cal. The complainant asks for a reduction enabling it to meet the competition created by the state rates. The complainant cites a paragraph from an order of the Arizona commission as follows: "In establishing rates on lumber and timber which we deem reasonable as compared with the San Pedro rates, we announce that if the carriers further disturb this relationship by a reduction in the San Pedro rates, it is to be reasonably expected that this commission will make a similar readjustment of the rates in northern Arizona."

A hearing on the application of the western railways for a general readjustment of freight rates from the Missouri river to Utah points was begun at Salt Lake City on July 21, before Commissioner H. C. Hall. The rates were filed by the railways some time ago and were suspended by the Interstate Commerce Commission on the protest of the Salt Lake City Commercial Club Traffic Bureau until July 20, and since that time they have been again suspended until January 20, 1915. The first day's session was taken up by the testimony of W. A. Poteet, chairman of the Trans-Missouri Freight Bureau, who presented a large amount of documentary evidence as to the proposed changes in rates and the plan on which they had been compiled. Mr. Poteet said that the equalization of rates west of the Missouri river was destroyed by the decisions of the Interstate Commerce Commission in the Salt Lake, Spokane and Colorado rate cases, and that the proposed advances were intended to bring about a readjustment to restore the equality from eastern

shipping points. The new tariffs, he said, established a more equitable relationship than that now in effect, and include 187 items on which rates are increased, 158 on which the rates are reduced, and 62 on which no changes are made. The advances, he said, were to correct discrimination against Colorado points. The Traffic Bureau of Utah (the new name of the Commercial Club Traffic Bureau) which is the principal complainant in the case, asked for a postponement until October 1, which was agreed to by the railroads, but Commissioner Hall said it was necessary for the case to be heard at the time set if it was to be heard before a commissioner, on account of the itinerary which had been arranged.

Rates on Apples from Virginia to Eastern Cities

John Nix & Company et al. v. Southern Railway et al. Opinion by the commission:

The commission finds that the rates on apples from points in Virginia to New York, Philadelphia, Baltimore and Washington are not unreasonable nor discriminatory. (31 I. C. C., 145.)

Rates on Cast Iron Pipe from Birmingham

Southern States Supply Company v. Southern Railway, et al. Opinion by the commission:

The commission finds that the rate of 22 cents per 100 lb. on cast iron pipe in carloads from Birmingham, Ala., to Columbia, S. C., is neither unreasonable nor prejudicial. (31 I. C. C., 30.)

Complaint Dismissed

Edward Wolverton v. Union Pacific. Opinion by the commission:

Complaint is made that double the first-class rate charged for the transportation of an automobile, crated, from Wamsutter, Wyo., to Boulder, Colo., was unreasonable to the extent that it exceeded the first-class rate. The evidence shows that the automobile was not crated in accordance with the classification requirement, and that double the first-class rate was the published rate for such a shipment. (31 I. C. C., 23.)

Lumber to Nashville, Tenn.

Opinion by Commissioner Hall:

The commission finds that certain proposed increases in the rates on lumber from points in Kentucky and Tennessee on the Memphis division of the Louisville & Nashville to Nashville, Tenn., are not justifiable. The carrier seeks to remove certain inconsistencies and inequalities in the rates, but it is the commission's opinion that the inconsistencies and inequalities which the proposed schedule would create are greater than any it seeks to do away with. (31 I. C. C., 186.)

Kaufman, Tex., Discriminated Against

Kaufman Commercial Club v. Texas & New Orleans et al. Opinion by Commissioner Daniels:

The commission finds that defendants' rates on grain and grain products from points in Kansas and Oklahoma to Kaufman, Tex., are prejudicial as compared with the rates to Terrell, Tex., about 10 miles to the north of Kaufman and in a different rate group. It is, therefore, ordered that the rates on the commodities involved to Kaufman should not be in excess of those to Terrell. (31 I. C. C., 167.)

Refusal to Deliver Cars Except Upon Certain Conditions as to Routing

R. E. Downie Pole Company v. Northern Pacific et al. Opinion by the commission:

The defendant refused to furnish its own cars for a shipment of cedar poles from complainants' spur at Inglewood near Redmond, Wash., unless complainant would agree to route the shipment over the Northern Pacific via its lines to Portland, thereby giving the road a longer haul. Complainant was therefore compelled to ship via Portland, thereby losing the benefits of the lower rate through Seattle. The Northern Pacific did not restrict the application of its local rates on poles from Redmond to Seattle to intrastate traffic. It filed the tariffs naming those rates with this commission, and in the absence of joint through rates between it and the Oregon-Washington Railroad & Navigation Company via Seattle was required to use them in constructing through rates on traffic through that gateway. That

requirement carried with it the duty on the part of the Northern Pacific to furnish cars and to make suitable arrangements with the Oregon-Washington for the transportation beyond Seattle. The commission, therefore, awards damages for the excess in the rates via Portland over those via Seattle. (31 I. C. C., 142.)

Tennessee Central Joint Passenger Fares

Blanton W. Burford et al v. Louisville & Nashville et al. Opinion by the commission:

The refusal of the Louisville & Nashville and the Nashville, Chattanooga & St. Louis, to enter into arrangements with the Tennessee Central for through routes and joint interstate passenger fares from points on their lines to Bloomington, Horn Springs and Hamilton Springs, Tenn., points on the Tennessee Central at which complainants' resorts are located, while participating in through routes and joint fares to resorts on the lines of the Southern Railway, the Illinois Central and other carriers is held by the commission to be discriminatory. (31 I. C. C., 182.)

Class Rates from Pueblo to Durango, Col.

Pueblo Commerce Club v. Denver & Rio Grande. Opinion by the commission:

Complaint is directed against the second, third, fourth and fifth class rates from Pueblo to Durango, Col., principally on the ground that they are the same as the corresponding class rates from Denver to Durango. The commission, however, finds that the rates are not discriminatory. Although Pueblo does not appear to be given the full benefit of its location with respect to the rates to Durango, it has a compensating advantage in that it is given the same rates as Denver to points in Wyoming and Nebraska to which the distance from Pueblo via the short line is 119 miles greater than from Denver. (31 I. C. C., 133.)

Grain Elevation Allowances at St. Louis

Opinion by Commissioner McChord:

The commission finds justified the withdrawal by the carriers of an elevation allowance of one-fourth cent per bushel at St. Louis and East St. Louis on grain when destined to Evansville, Ind., it appearing that the proportional out of which the allowance is made is a compelled rate. It is also held that a comparison of rates from St. Louis and East St. Louis to Evansville with that from Peoria to the same destination does not necessarily signify undue discrimination if the withdrawal of the respondents' concurrence in the rate from the latter point would not affect the movement, rates, or practices respecting elevation. The test of discrimination is the ability of one of the carriers participating in the two through routes to put an end to the discrimination by its own act. (31 I. C. C., 696.)

Rates on Boots and Shoes from Boston to Atlanta

In re the investigation and suspension of advances in rates by carriers for the transportation of boots and shoes from Boston, Mass., and other points to Atlanta, Ga. Opinion by Commissioner Clements:

The commission finds that the respondents have failed to justify certain proposed increases in the rates on boots and shoes from Boston, New York and other eastern port cities to Atlanta, Ga., via water and rail routes and it is, therefore, ordered that they maintain for the future rates not in excess of those at present in effect, which were prescribed by the commission in the case of *Kiser & Company v. Central of Georgia* (17 I. C. C., 430) decided November 27, 1909, and the two year period having expired. (31 I. C. C., 154.)

Rental Charges for Insulated Cars

Opinion by Commissioner Harlan:

The rule under consideration in this case relates to the movement of potatoes from points of origin in Minnesota and neighboring states and reads as follows: "When shipper orders a refrigerator or other insulated car to be heated by him or to move without heat, a charge of \$5 per trip will be made for use of car and will accrue to the owner thereof." The commission finds this rule to be reasonable. It will probably work to increase the available supply of cars, particularly since the private car lines have announced their willingness to supply cars on this

basis. It is also the fact that in the beginning potatoes moved in box cars during the fall months and that rates were fixed on that basis, but that now they were more largely in refrigerator cars during the winter months. (31 I. C. C., 255.)

Milling-in-Transit Charges

F. W. Stock & Sons v. Lake Shore & Michigan Southern. Opinion by the commission:

Complainant having mills at Hillsdale and Litchfield, Mich., on defendant's line draws its grain from points in Michigan, Indiana, Illinois and western trunk line territory, and ships grain products principally to points in the east. The tariffs provide for milling in transit on the basis of the through rate applying on the grain or grain product, whichever is higher, from point of origin to destination, plus a charge of one-half cent per 100 lb. If there is an out-of-route or back haul and provided the grain moves into the milling point and the product out over the same road, the charge is made on the basis of a distance scale varying from 1½ cents for 25 miles or less to 5½ cents for 250 and over 175 miles plus the local, reshipping or proportional rate from the milling point to final destination. The commission finds that this arrangement is neither unreasonable nor discriminatory. (31 I. C. C., 150.)

Apple Rates from Espanola, N. Mex.

M. W. Thompson v. Atchison, Topeka & Santa Fe, et al. Opinion by the commission:

In the original report in this case, the commission held that the rates on carload shipments of apples from Espanola, N. Mex. (a local station on a branch narrow-gage line of the Denver & Rio Grande), to certain points in Arizona were unreasonable to the extent that they exceeded a rate of 80 cents per 100 lb., minimum weight, 30,000 lb. In view of the facts developed on rehearing, however, the commission is of the opinion that the 80-cent joint rate was possibly too low. The present rate from Santa Fe to the points of destination is \$1, and that rate, covering a large number of points of origin, is not here in issue. A lower rate from Espanola would not be proper if the \$1 rate is to be maintained from Santa Fe and other points. Without deciding whether the present rate of \$1 from Colorado common points and Santa Fe is reasonable, it finds that a joint rate should be established from Espanola on the same basis. (31 I. C. C., 138.)

Fruit Rates from California to Florida

Pacific Fruit Exchange v. Southern Pacific et al. Opinion by Commissioner Meyer:

At present deciduous fruits in carloads move from California points to Montgomery, Ala., at a combination rate of \$1.60 per 100 lb., made up of the western lines blanket or territorial rate of \$1.15 to Memphis and an unpublished proportional of 45 cents from Memphis beyond. The rate to Tampa, Fla., is \$1.92 made up of \$1.62 to Jacksonville and 30 cents beyond. Request is made that the blanket rate of \$1.15 be applied to Montgomery and that of \$1.92 be applied to Tampa. The southern lines are opposed to the idea. The western lines have favored it, on the other hand, but have been unwilling to decrease their own revenues in order to permit the necessary reductions. The commission does not believe that the application of blanket rates would be justified, but that remedy should be sought in negotiations which are now going on between the southern and western carriers concerning reductions in the rates involved, and it is prepared to take up the matter again if reductions are not made. It is also found that the southeastern roads' proportionals of the through rates are not unreasonable. A fourth section application requesting permission to continue lower rates to Montgomery than to intermediate points such as Baltimore, to which it is intermediate via certain routes is granted, it appearing that the larger part of the traffic moves over a circuitous route. (31 I. C. C., 159.)

The Minnesota Rate Case as Affecting Passenger Fares

Hans Trier v. Chicago, St. Paul, Minneapolis & Omaha. Opinion by Commissioner Daniels:

This case was originally reported in 30 I. C. C., 352, a brief abstract of the report being given in the *Railway Age Gazette*

of May 29, 1914, page 1210. Rehearing is now asked on the ground that the commission did not give due heed to this question: Does the fact that the rate charged for one leg of an interstate journey exceeds the maximum allowed by the statute of the state in which that leg lies cast the burden of proof on defendant to establish the reasonableness of the through rates? The commission decides this question in the negative and dismisses the petition for a rehearing. It holds that for the purpose of determining the reasonableness of an interstate rate, a rate established by the state is no more to be presumed reasonable than one voluntarily by the carrier.

On principle it would seem that the reasonableness *per se* of an interstate rate should be independently determined. It is inclined to doubt the propriety and legality of permitting the assumption that a passenger who buys a through ticket for an interstate journey pays a charge which consists of a combination of a number of state charges, or of an interstate charge plus an intrastate charge. It would seem that an interstate journey should be viewed in its entirety, and that a complainant should not be permitted, except so far as the fourth section is applicable, to divide the interstate rate into as many parts as the number of states through which the interstate journey runs, merely for the purpose of ascertaining whether each separate intrastate leg of an interstate journey carries a rate which conforms to the rate prescribed for intrastate trips by the state in which that leg lies. (31 I. C. C., 707.)

STATE COMMISSIONS

The Missouri Railroad & Warehouse Commission has issued a decision ordering the cancellation of tariffs filed in October, 1913, by the Atchison, Topeka & Santa Fe, Missouri, Kansas & Texas, St. Louis & San Francisco, Kansas City Southern, and Chicago, Burlington & Quincy, naming team track charges for the detention of cars after free time upon the team tracks at Kansas City, Mo. The tariffs were suspended by the commission some time ago pending an investigation.

The Missouri Public Service Commission held a hearing at Jefferson City on July 21, on a proposed order requiring the publication of additional joint rates and through routes. The hearing was postponed until September 24, by which time it is expected the roads will be able to present a satisfactory plan. The commission advised the roads that any rates filed under this plan would not militate against their proposal to ask for a general advance in freight or passenger rates in the state.

The Pennsylvania Public Service Commission, acting on the application of certain railroad companies, has concluded that the law of the state does not prevent a common carrier from according free or reduced rate transportation to a contractor, his men, materials, tools, equipment and supplies, etc., necessary to be transported by such contractor in the performance of work being done for the carrier by the contractor. The contractor, under such circumstances, is, to all practical intents and purposes, an employee of the carrier engaged in work for the carrier, and the transportation is, in substance and effect, transportation rendered by the carrier to itself.

PERSONNEL OF COMMISSIONS

Thomas L. Wolf has resigned as rate clerk for the Illinois Public Utilities Commission to engage in other business.

John F. Meaney has been appointed a member of the Massachusetts Public Service Commission in place of George W. Bishop, whose term has expired. Mr. Bishop has been a railroad commissioner for many years. He has now been appointed chief of one of the bureaus of the commission.

COURT NEWS

All evidence to be presented by both sides in the suit of the state of Illinois against the Illinois Central to collect \$2,500,000 in back taxes has been presented before the special master, L. D. Puterbaugh, who has set August 24 for the beginning of arguments.

Railway Officers

Executive, Financial, Legal and Accounting

J. R. Frink has been elected secretary and treasurer of the Macon, Dublin & Savannah, with headquarters at Macon, Ga., vice A. S. Hale, resigned, effective July 16.

H. E. Cartwright has been appointed auditor of disbursements of Wells Fargo & Company, with headquarters at Chicago, succeeding J. G. Innes, resigned to accept service in the operating department.

Operating

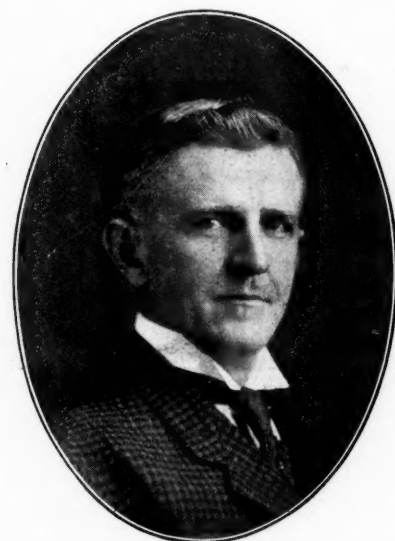
John F. Tracy, assistant trainmaster of the St. Paul division of the Northern Pacific, has been appointed trainmaster at Minneapolis, Minn.

E. A. Sollitt, assistant division superintendent of the Wabash at Montpelier, Ohio, has been appointed acting superintendent of the Peru division, with office at Peru, Ind., in place of J. C. Sullivan, granted leave of absence on account of ill health.

Traffic

Jonathan Story has been appointed traveling passenger agent of the Wabash, with headquarters at Boston, Mass., reporting to J. D. McBeath, New England passenger agent.

W. B. Groseclose, formerly assistant freight traffic manager of the Missouri, Kansas & Texas, has been appointed traffic manager of the Detroit, Toledo & Ironton, with headquarters at Detroit, Mich. The office of general freight and passenger agent, heretofore filled by H. C. Bell, is abolished. Mr. Groseclose was born October 27, 1858, at Salisbury, N. C. He entered railway service in 1876 and from that time until 1888 was consecutively clerk, operator and agent of the Indianapolis & St. Louis and the Atchison, Topeka & Santa Fe, and cashier, agent and route agent of the Adams and Wells Fargo expresses. On December 10, 1888, he was appointed agent of the St. Louis, Arkansas & Texas, of Texas, retaining that position until April, 1890, when he became general agent. From July, 1890, until July, 1893, he was general freight agent of the same road which is now the St. Louis Southwestern, of Texas. In July, 1893, he became the general manager of the Tyler Car & Lumber Company, Tyler, Tex., but in June, 1894 was appointed commissioner of the Galveston Freight Bureau. From January 15, 1895, to November 15, 1898, he was assistant general freight agent of the Missouri, Kansas & Texas, of Texas, at Houston, Tex. On November 15, 1898, he was appointed to a similar position on the Missouri, Kansas & Texas, at St. Louis, and on January 15, 1901, succeeded to the position of general freight agent. From June 1, 1910, to January 1, 1914, he held the position of assistant freight traffic manager, with headquarters at Chicago, as above noted.



W. B. Groseclose

R. E. Larmour has been appointed assistant general freight agent of the Canadian Pacific, with office at Vancouver, B. C., and has been succeeded as division freight agent at Vancouver by H. A. Plow. Gerald Hiam has been appointed division freight agent at Fort William, Ont., succeeding C. S. Morse, transferred, and K. Elliott has been appointed city freight agent at Calgary,

Alta., all four of the above appointments being effective July 1. Effective July 25, O. H. Becker has been appointed district freight agent at Portland, Ore., succeeding E. L. Cardle, resigned, and has been succeeded as district freight agent at Tacoma, Wash., by Nelson Fleming.

J. W. Gray, assistant general claim agent of the Beaumont, Sour Lake & Western, has been appointed general claim agent of the Houston Belt & Terminal, vice W. J. Laffey, resigned, and has been succeeded by C. E. Belk.

C. C. Cameron, coal traffic manager of the Illinois Central, has been appointed general freight agent of the northern and western lines, and has been succeeded by Burton J. Rowe, assistant general freight agent of the northern and western lines. These officers will have headquarters at Chicago.

J. H. Peebles, superintendent of the Nashville, Chattanooga & St. Louis, has been appointed assistant general passenger agent of this road and the Western & Atlantic with headquarters at Chattanooga, Tenn. W. I. Lightfoot, assistant general passenger agent at Nashville, Tenn., has assumed immediate charge of the solicitation of all passenger traffic.

Engineering and Rolling Stock

Thomas Turnbull has been appointed assistant chief engineer of the Canadian Northern, effective July 21.

Purchasing

George E. Scott, whose appointment as purchasing agent of the Missouri, Kansas & Texas, with headquarters at St. Louis, Mo., has already been announced in these columns, was born May 27, 1885, at Cleveland, Ohio. He received a grammar school education, and began railway work with the Lake Shore & Michigan Southern in July, 1901, as telegraph messenger at Toledo, Ohio. Subsequently he was clerk to the assistant superintendent and superintendent, and from December, 1905, to January, 1907, was secretary to the general superintendent and assistant general manager of that road at Cleveland. He was then until July, 1911, secretary to the vice-president of the New York Central Lines at Chicago, being made assistant chief clerk to the vice-president on the latter date. In May, 1912, Mr. Scott went to the Missouri, Kansas & Texas, as secretary to the president, and one year later was made assistant purchasing agent. On January 1 of this year he became acting purchasing agent, and on July 1 was appointed purchasing agent, as above noted.



Photo by Matzenc, Chicago.
G. E. Scott

OBITUARY

Daniel J. Malone, superintendent of shops, of the Oregon Short Line, at Pocatello, Idaho, was shot and killed, July 24, by Frank Madden, foreman of the tin shop. The murderer, with the same revolver, at once killed himself. The men were both old employees and had long been friends, but Madden, it is believed, had become mentally unbalanced because of criticisms received on account of unsatisfactory work. Mr. Malone was born at Western Point, Md., in 1860, and he was on the Union Pacific for a number of years before going to the Oregon Short Line in 1890. Madden was 60 years old. Malone had four brothers, two of whom met death in murders very much like this one; Edward in West Virginia in 1896, and Michael, division foreman on the Southern Pacific, in Nevada, in 1906.

Equipment and Supplies

LOCOMOTIVE BUILDING

THE WESTERN MARYLAND is said to be in the market for 16 Mallet type locomotives.

THE INTER MOUNTAIN has ordered four locomotives from the Lima Locomotive Corporation.

THE CINCINNATI, HAMILTON & DAYTON is in the market for 30 Mikado and 5 Pacific type locomotives.

THE MOBILE & OHIO has ordered one superheater Consolidation freight locomotive from the American Locomotive Company. This locomotive will have 24 by 30 in. cylinders, 63 in. driving wheels, a total weight in working order of 220,000 lb., and a steam pressure of 190 lb.

CAR BUILDING

THE SOUTHERN PACIFIC has ordered 50 passenger cars from the Pullman Company.

THE WABASH has ordered 7 postal cars from the American Car & Foundry Company.

THE BALTIMORE & OHIO is inquiring for 1,000 box cars for the Cincinnati, Hamilton & Dayton.

THE ERIE has ordered 200 gondola cars from the Standard Steel Car Company and will soon place orders for an additional 600.

THE CHICAGO, INDIANAPOLIS & LOUISVILLE has ordered 254, 36 ft. 40-ton box cars from the Haskell & Barker Car Company.

THE MINNEAPOLIS & ST. LOUIS has ordered two postal cars from the Pullman Company, and is in the market for 500 gondola and about 750 box cars.

THE DELAWARE, LACKAWANNA & WESTERN has ordered 96 suburban passenger coaches and 14 suburban combination baggage and smoking cars from the Pullman Company.

THE NEW YORK CENTRAL & HUDSON RIVER has placed orders for 1,000 box cars for its own use, the number being divided equally between the Haskell & Barker Car Company and the Barney & Smith Car Company.

THE CANADIAN NORTHERN has ordered 5 steel underframe postal cars from the Preston Car & Coach Company, 15 steel underframe baggage and 5 steel underframe first class cars from the National Steel Car Company, 8 all-steel suburban cars from the Pressed Steel Car Company, 7 wood colonist cars from the Crossen Car Company and 11 steel underframe standard sleeping, 2 steel underframe compartment sleeping, 7 steel underframe compartment observation sleeping, 7 steel underframe dining and 7 steel underframe tourist cars from the Canadian Car & Foundry Company.

IRON AND STEEL

THE MISSOURI PACIFIC has ordered 110 tons of steel for single track deck girder spans from the American Bridge Company.

W. S. BARBEE AND RAILWAY TRACTION & SUPPLY COMPANY has ordered 250 complete bumping posts, amounting to 127 tons of steel, from the American Bridge Company.

THE PADUCAH & ILLINOIS has ordered 587 tons of miscellaneous material for its bridge at Metropolis, Ill. The Chicago Bridge & Iron Company received an order for 180 tons of this allotment, the remainder of the order being placed elsewhere.

THE TRANS-AMAZON RAILWAY OF ECUADOR.—It is reported that the preliminary studies for the Trans-Amazon Railway of Ecuador are advancing rapidly and that about one-half of the work is already completed.

Supply Trade News

The Railway & Traction Supply Company has moved its office from room 1307 to larger quarters in room 504, Rector building, Chicago.

W. H. Cadwallader, assistant to the general manager of the Union Switch & Signal Company, has been appointed general manager.

The American Flexible Bolt Company, Pittsburgh, Pa., has opened offices at 50 Church street, New York, with R. W. Benson in charge as general sales manager.

The Ogle Construction Company, Chicago, has recently received contracts from the Illinois Central for the erection of a 500-ton coaling station at Jackson, Miss.; one of 200 tons at Rolling Fork, Miss., and one of 300 tons at Amboy, Ill.

It is announced that Charles R. Crane will retire shortly as president of the Crane Company, Chicago, to be succeeded by R. T. Crane, Jr., now first vice-president, and that R. T. Crane, 3rd, will be advanced from second vice-president to first vice-president.

The Roberts & Schaefer Company, Chicago, has received a contract from the Canadian Northern for the designing and building of five Holmen type locomotive coaling plants for installation at Trenton, Capreal, Hector, Foley and Fitzbach, Ont. The approximate contract price was \$70,000.

The American Car Roof Company, Chicago, manufacturer of the Christy steel freight car roof, has changed its method of business and now gives the right to build the Christy roof on cars to the car builders themselves on a royalty basis. This arrangement makes it possible to equip a car with this particular roof, in the same shop that the car itself is being built.

Sidney G. Johnson, until recently vice-president in charge of sales and engineering of the Union Switch & Signal Company, has been appointed assistant to the president of the General Railway Signal Company, Rochester, N. Y., and will have his headquarters at the New York office of the company at 55 Liberty street. A portrait of Mr. Johnson and a sketch of his career appeared in the *Railway Age Gazette* of March 27, 1914, page 765, at the time of his appointment as vice-president of the Union Switch & Signal Company.

E. A. Fleming, chief clerk to the president, Rock Island Lines, Chicago, and the designer and patentee of the form of trip pass that has been used by that company during the past year, is now placing the pass on the market in order that other carriers may, if desired, secure the privilege of using the form. The pass, which is termed the Fleming "automatic" trip pass, has been given a test of 12 months, during which time 250,000 passes were issued. The Interstate Commerce Commission after a special examination of the pass returns covering a period of six months gave its approval and consent to the further use of the form. A circular has been issued giving a very complete description of the form and its special features. This pass form and the method of using it were described in the *Railway Age Gazette* of August 15, 1913, page 275.

Judge Hazel in the U. S. District Court at Buffalo has upheld the directors and majority stockholders of the United States Light & Heating Company, Niagara Falls, N. Y., in the receivership of that corporation by ordering the answer of Henry A. Ackerman stricken out and vacating the appointment of receivers in the action which was brought by the Picher Lead Company. Simultaneously, he appointed James O. Moore, of Buffalo, and James A. Roberts, of New York, receivers in a new action brought by the Central Trust Company of New York, which holds \$200,000 of the company's notes. The Central Trust Company is not antagonistic to the existing control of the United States Light & Heating Company. The plaintiffs in the other receivership proceeding, Henry A. Ackerman and G. M. Walker, who were appointed receivers at the outset of the Picher Lead Company's action, were removed a few days ago.

TRADE PUBLICATIONS

DENVER & RIO GRANDE AND WESTERN PACIFIC.—The passenger department of these companies has issued an attractive folder devoted to panoramic views and descriptions of scenes along the route through the Colorado-Utah Rockies and the Sierra Nevada mountains.

WATERPROOFING.—The Standard Asphalt & Rubber Company, Chicago, has issued a 16-page booklet descriptive of the various "Sarco" methods and materials. It also shows a number of illustrations of important structures in which this material has been used.

STEEL TRACK WORK.—The St. Louis Foundry Company, St. Louis, has issued a 56-page booklet devoted to illustrations and the description of its solid cast manganese steel track work for steam and electric railroads. This booklet also contains tables of dimensions for switches and for point mates.

SOUTHERN PACIFIC.—This company has recently published an elaborate folder, entitled "Seven Months Before," which shows by comprehensive photographs the arrangement of the buildings of the Panama Pacific International Exposition in San Francisco. It also quotes rates from all important cities to the exposition grounds.

STAY BOLTS.—The Flannery Bolt Company, Pittsburgh, Pa., has recently issued its 1914 catalog of Tate flexible stay bolts. The booklet which has 30 pages contains detailed descriptions of the bolts with instructions concerning their ordering, installation, adjustment, etc. There are a large number of views of the bolts and sleeves and a number showing typical installations.

CONCRETE BINS.—The Brown Hoisting Machinery Company, Cleveland, Ohio, has issued catalog S, 1914, descriptive of Brown-hoist suspended concrete bins for storing coal, coke, ashes, cement, sand and other materials. These bins are reinforced with Ferro-inclave reinforcement and are equipped with Brown-hoist chutes, gates and spouts; and, being made of concrete, they are not subject to deterioration by the action of acids. The catalog is very well illustrated and contains a number of views of typical installations.

GREAT NORTHERN.—The passenger department has issued a 160-page booklet, entitled "Annotated Timetables of the Great Northwest," which gives a brief description of the principal cities and scenic attractions on its line from St. Paul and Minneapolis west to the Pacific coast. The descriptions are given in order, with their mileage from St. Paul or from Seattle, and give the principal facts of interest about each place, together with maps and profuse illustrations.

HEAT-TREATING FURNACES.—Tate, Jones & Company, Inc., Pittsburgh, Pa., have recently issued a catalog devoted to their heat-treating furnaces for annealing, hardening and tempering of steel and all heat-treating operations. The catalog attempts to show wherein Tate-Jones furnaces are superior to others and the various types of furnaces are illustrated and described in detail, care being taken to show for what kind of work each furnace is designed.

BORING MILLS.—The Pratt & Whitney Company, Hartford, Conn., has recently issued an attractive catalog describing its side head boring mill. The booklet contains a detailed description of the machine and a number of engravings showing the machine itself and a number of its parts, special attention being given to the central control feature whereby all the controlling levers, etc., are within easy arm's reach of the operator and may be manipulated by him without the necessity for his moving out of his position or taking his eye off the work that is at hand.

LINK BELT.—The Link Belt Company, Chicago, has recently issued section "A" of catalog No. 110 descriptive of the original Ewart detachable link belt and sprocket wheels. The booklet has 112 pages. It contains actual size views of the various types and sizes of detachable links, the number of the link, the approximate number of links in 10 ft., and the average ultimate strength in pounds being given for each size. There are also sections devoted to methods for obtaining the working strains and horse powers, and to price lists, attachments, chains and sprocket wheels.

Railway Construction

ALTON & JACKSONVILLE (Electric).—Reported incorporated to build a line between Jacksonville and Alton, Ill., about 50 miles. Among the incorporators are F. L. Butler, W. T. Meloan, J. S. McClellan and H. Okin.

THE CHICAGO & ALTON will resume work presently on the enlargement of the freight yards at Venice, Ill. The work consists of the placing of additional tracks sufficient to hold 500 cars.

CHICAGO & NORTH WESTERN.—An officer writes that a contract has been let to Peppard & Burrill, Minneapolis, Minn., for the construction of a branch line from Koepenick, Wis., eastwardly seven miles to the west bank of the Wolf river. The line will tap a lumber district to the north of the Menominee reservation.

ILLINOIS CENTRAL.—It is reported that this company is having surveys made for its proposed extension from Jackson, Miss., to Birmingham, Ala., about 200 miles distant. It is also said that the company is considering a project of building a 15 or 20 mile line from Haleyville, Ala., to Brilliant, the northern terminus of its independent line from Winfield, to connect with a line to be built by the Alabama, Tennessee & Northern from Reform to Winfield, about 40 miles, the connection being made for the purpose of giving the Illinois Central access to Mobile.

JANESVILLE & MADISON TRACTION (Electric).—A contract is reported let to M. M. Doran, Madison, Wis., for grading the section between Edgerton and Stoughton, Wis., of the proposed interurban line from Janesville to Madison. (March 20, p. 703.)

MASCOTT & WESTERN.—Incorporated in Arizona for the purpose of constructing a line from Willcox, Ariz., southeast to the mines of the Mascott Copper Company at Dos Cabezas, about 18 miles distant. The incorporators include F. N. McCauler, D. S. Stevenson, C. V. Weston, J. A. Street, J. C. Knapp, C. M. Stoddard and M. A. Pickett, all identified with the Mascott Copper Company.

NEW YORK, CHICAGO & ST. LOUIS.—An officer writes that work will be started shortly on the elimination of West Side grade crossings of the road at Cleveland, Ohio. The cost of the work will be about \$3,000,000. Robert Hoffman, chief engineer, department of public service, city of Cleveland.

NEW YORK SUBWAYS.—The New York Public Service Commission, First district, has opened bids for the construction of section No. 5 of routes 4 and 36, including that part of the Broadway-Fourth avenue subway in Manhattan, extending easterly from Fifty-ninth street and Seventh avenue to Fifth avenue, where it divides into two branches, one continuing through Fifty-ninth street and the other through Sixtieth street to Second avenue. It is said that the Degnon Contracting Company, New York, presented the lowest bid of \$2,808,661.

OGDEN-LOGAN & IDAHO (Electric).—An officer writes that a new company by this name is being organized to take over the properties of the Ogden Rapid Transit and the Logan Rapid Transit companies, and that a contract has been let to the Utah Construction Company for the grading for a line which will unite the two present systems and extend from Ogden, Utah, to Logan, and thence to Preston, Idaho. The line will pass through Ogden, Willard, Brigham, Honeyville, Deneyville, Collinson, Mendon, Wellsville, Hyrum, Millville, Providence, Logan, Hyde Park, Smithfield, Richmond, Webster and Lewiston, Utah, and Preston, Idaho, a territory at present served by the Oregon Short Line. One-fourth of the line only will involve difficult construction work. There will be a number of bridges, but no trestles or tunnels. The maximum grade will not exceed $1\frac{3}{4}$ per cent., and the maximum curve 8 per cent. The line will mainly do a passenger business, but it may also have some traffic in agricultural products and possibly coal. Contracts have already been placed for all track materials, bridges, cars, etc. R. W. Armstrong, Ogden, Utah, is chief engineer.

PENNSYLVANIA RAILROAD.—An officer writes that a contract has been let to the Latta & Terry Construction Company, Phil-

adelphia, Pa., for the construction of an extension of the Sugar Camp branch of the Tyrone division. The extension will be six and one-half miles long. It will have a maximum grade of 1.65 per cent. against the direction of traffic and one of 2 per cent. in the opposite direction. Coal will constitute most of the traffic.

RAILWAY STRUCTURES

CHATTANOOGA, TENN.—The Cincinnati, New Orleans & Texas Pacific is now preparing plans, it is said, for a new brick, steel and concrete freight station and warehouse to cost about \$250,000, and to be erected on a site at the corner of Market and Union streets, now occupied by an old passenger station.

COLBURG, MO.—The Chicago, Milwaukee & St. Paul is now starting work on 12 additional reinforced concrete grain storage tanks at Colburg, Mo. These tanks are set on a pile foundation. The total capacity of these additional 12 tanks is 500,000 bu., 20 tanks with a total capacity of 750,000 bu. have already been completed. James Stuart & Company are the contractors.

DYERSBURG, TENN.—The Illinois Central is said to be planning to lay out a small yard and to construct shops, the total costing about \$150,000.

LUDLOW, KY.—The Cincinnati, New Orleans & Texas Pacific, it is said, has purchased 28 acres of land near Ludlow, and intends to build an addition to its shops and to lay new tracks and sidings.

McPHERSON, KAN.—The Atchison, Topeka & Santa Fe is just completing the plans for a new passenger depot at McPherson, Kan. The estimated cost is \$16,000.

PORTSMOUTH, OHIO.—The Chesapeake & Ohio is reported to have decided to build its proposed bridge over the Ohio river, at a point about eight miles east of Portsmouth, Ohio, and a short distance above the mouth of the Little Scioto river. The railroad follows the south bank of the Ohio, which makes a bend to the northward at this point, so that the crossing of the stream will be near the apex of an acute angle and in the general direction of the line which will be built from there to a point near Columbus, Ohio, about 93 miles. The bridge will consist of two cantilever spans, each 750 ft. long, and 24 plate girder spans, each 80 ft. long, making its total length 3,420 ft. It is estimated that the cost will be about \$2,000,000.

SPARTANBURG, S. C.—A contract is reported let by the Piedmont & Northern to J. A. Jones, 404 Realty building, Charlotte, N. C., for a warehouse and station, 108 by 110 ft. in size and costing about \$40,000.

TACOMA, WASH.—The Oregon-Washington Railroad & Navigation Company has awarded a contract to O. R. Larson, Tacoma, for the construction of new freight terminals at this point.

TORONTO, ONT.—The contract for the construction of the new union station to be constructed by the Toronto Terminals Railway for the Grand Trunk and the Canadian Pacific has been awarded to the P. Lyall Construction Company, of Montreal and Toronto, the amount of the contract being about \$3,000,000. The station will be constructed on a site east of the present building and will be bound by Front, Bay and York streets. The architects are Ross, Macdonald & Jones, with whom is associated J. M. Lyle. J. R. W. Ambrose is chief engineer of the terminal company. The erection of the union station is part of a \$15,000,000 development project which includes a large amount of grade separation to be effected along the water front.

A CHINESE RAILROAD IN THE BANKING BUSINESS.—A \$250,000 loan borrowed by the Chinese authorities at Mukden from the South Manchuria Railway last year fell due at the end of May. It was agreed, however, that the loan be extended an additional year.

RAILWAY EXTENSION IN RUSSIA.—It is reported that construction work is soon to begin on a 95 mile narrow gage railway from Riga, on the Gulf of Riga, in the eastern part of Russia to Moisekull. It is announced that work is to be begun at three points along the line and that the road is to be in operation by January 15, 1917.

Railway Financial News

BUFFALO, ROCHESTER & PITTSBURGH.—A semi-annual dividend of 2 per cent. has been declared on the common stock. This compares with 3 per cent. paid six months ago.

EVANSVILLE & INDIANAPOLIS.—A protective committee for the first mortgage 6 per cent. bonds and for the first consolidated mortgage 6 per cent. bonds has been formed consisting of Frederick H. Shipman, chairman, treasurer of the New York Life Insurance Company; William B. Cardozo, vice-president of the Farmers' Loan & Trust Company; Ellis W. Gladwin, vice-president and secretary of the Home Life Insurance Company; Edward H. Ladd, Jr., of Ladd & Wood; Raymond M. Smith, of Megargel & Company.

INTERNATIONAL & GREAT NORTHERN.—Holders of the \$11,000,000 3-year 5 per cent. notes have agreed to an extension for two and a half years at 6 per cent., the notes to be repaid at maturity at 101. The notes were originally bought by J. & W. Seligman & Company and associates, and the following statement was given out by Frederick Strauss, of J. & W. Seligman & Company, after a meeting of the holders of these notes:

"An understanding has been arrived at between the trustees of the estate of Jay Gould, the owners of a majority interest in the stock of the International & Great Northern Railway, whereby an option has been given to a committee consisting of Alexander J. Hemphill, president of the Guaranty Trust Company; Alvin W. Krech, president of the Equitable Trust Company; Benjamin Strong, Jr., of the Bankers Trust Company; S. H. Voorhees, of the Royal Bank of Canada; Franklin Q. Brown, of Redmond & Company; R. Lancaster Williams, of Middendorf, Williams & Company, and Frederick Strauss, of J. & W. Seligman & Company, representing a majority of the noteholders, to purchase 51 per cent. of the preferred stock of the International and Great Northern Railway Company, and 51 per cent. of the stock of the International and Great Northern Corporation (the Virginia holding company which owns the entire common stock of the railroad company), which option if exercised will insure control to the purchasers.

"It cannot be too clearly impressed upon noteholders that no arrangements have been made or are contemplated whereby nonassenting noteholders will be paid. The alternative of a failure to extend the notes is a receivership, with all the complications and disadvantages that this implies."

KANSAS CITY, MEXICO & ORIENT.—The Kansas Public Utilities Commission, on application of the new company—the Kansas City, Mexico & Orient Railroad—to issue bonds and stocks to the amount of \$76,000,000, finds that the physical property is worth at least \$25,000,000, and on this authorizes a stock issue of \$20,000,000. The company is permitted to borrow \$6,000,000 on 2-year notes to pay its floating debt and for immediate use for improvements and betterments. The company is also permitted to issue \$31,000,000 income bonds to be used as collateral for the \$6,000,000 notes.

NORTHERN CENTRAL.—See Pennsylvania Railroad.

PENNSYLVANIA RAILROAD.—The Pennsylvania Public Service Commission has approved the lease of the Northern Central. (See July 3, 1914, page 40.)

SOUTHERN RAILWAY.—A sub-committee of the Senate Committee on Naval Affairs is engaged in an investigation of charges filed by B. W. Dulaney, a coal operator of Bristol, Tenn., which claim that the Southern Railway has not developed southern coal fields because of a desire on the part of the voting trustees to prevent too keen competition with the Pennsylvania coal fields. President Harrison was a witness and denied absolutely that the Southern Railway had in any way been improperly influenced in its policy or had failed to do its best to develop southern coal fields.

WABASH, CHESTER & WESTERN.—J. F. Gilster has been appointed receiver of this road, which runs from Menard, Mo., to Mount Vernon, 65 miles. The receivership followed the application of the St. Louis Union Trust Company, trustee for the \$500,000 bonds outstanding.